Mental health and mental health care use of the unemployed:

A multilevel study into the medicalization of unemployment in Europe

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PART I

GENERAL INTRODUCTION

CHAPTER 1

Introduction

1. Preface

"By overconsumption and far-reaching medicalization on the one hand, and savings on the other hand, our health care system seems to be a ticking time bomb, which can any time spin out of control" argue medical ethicist Ignaas Devisch and health economist Lieven Annemans (Knack.be, 2014). Belgium is referred to here, but other European countries face a similar problem, in particular in the aftermath of the economic crisis and the austerity policies subsequently implemented. Mental health care and psychotropic drugs are among these medical services, and concerns have been raised regarding overuse and inadequate consumption in several cases, while at the same time underuse is prevalent, especially among some subgroups of the population such as young men (Aalto-Setala et al., 2002).

In this research project, I elaborate on the mental health, health care, and medication use of the unemployed. Although it is not continuously specified in the text, I urge the reader to keep in mind that by health care, I refer here specifically to mental health care. This choice was not made randomly. In social research, there is widespread concern that the recent economic crisis, and particularly its effect on unemployment levels, will have an adverse effect on mental health (Mental Health Commission, 2011). Evidence consistently shows that job insecurity and unemployment are associated with more mental health problems (De Witte, 1999; McKee-Ryan & Harvey, 2011; Paul, 2006; Paul & Moser, 2009), and increased use of health care and psychotropic drugs (Rugulies, Thielen, Nygaard, & Diderichsen, 2010; Studnicka et al., 1991). Recent European research indeed shows sharp increases in unemployment and job insecurity, as well as in mental health problems (Economou, Madianos, Peppou, Patelakis, & Stefanis, 2013). However, the relation between unemployment and mental health care use, regardless of actual mental health, seems to be less straightforward. A few studies have found that the unemployed are less inclined to seek specialized care compared with the employed (Alonso et al., 2007; Gouwy, 2008), whereas others have reported greater health care use among the inactive, irrespective of actual (mental) health status (Bijl & Ravelli, 2000; Yuen & Balarajan, 1989). In addition, several studies have used mental health care or psychotropic drug use merely as a proxy for mental health

problems (Kuhn, 2007; Morris & Cook, 1991; Schmitz, 2011), based on the assumption – derived from the dominant biomedical model – that health care use is purely need driven.

Despite the fact that precarious work status is strongly related to mental well-being, there is a notable lack of sociological research concerning the relations between employment status and health care use, especially with regard to mental health. In addition, there are important differences between mental health care and general health care, such as the association with stigma (Mojtabai, 2010) and the fact that several countries have a separate mental health policy (WHO, 2005, 2011). In some countries, in order to provide sufficient mental health care services, mental health policy is even partly based on the unemployment rate (Bartley, 1994; Montgomery, 1999).

An equally significant deficiency in relevant literature is that, to date, little research has investigated whether the relation between individual unemployment and mental health care use varies across macroeconomic, societal, and institutional contexts. Given the aftermath of the economic crisis, these questions are becoming increasingly relevant. On the one hand, many European countries have responded to recession with austerity policies and cost containment in the health sector. This has raised concerns about a possible increase in unmet need (McKee, Karanikolos, Belcher, & Stuckler, 2012; Stuckler & McKee, 2012). Research has already shown reductions in the use of routine and preventive medical care (Gene-Badia, Gallo, Hernandez-Quevedo, & Garcia-Armesto, 2012; Kentikelenis et al., 2011). On the other hand, a growing number of social researchers are concerned about the increase in psychotropic drug use and highlight the "imperialism" of medicine into areas of daily life (Conrad, 2005, 2006). Concerns have arisen about the medicalization of economic problems, such as unemployment and poverty, resulting from the economic recession (Mental Health Commission, 2011).

In addition, the recession and the resulting increase in unemployment rates have not put a stop to the continued individualization of responsibility for unemployment (Bambra & Eikemo, 2009), even when unemployment is more structural and exogenous. The stigmatization and individualization of unemployment seem to remain, which may facilitate its medicalization. However, this view is not univocally supported. Some researchers argue that if unemployment is more prevalent, it can be perceived to a greater extent as a structural problem with a clear

exogenous cause, and less as deviating from the social norm (Clark, Knabe, & Ratzel, 2010; Clark, 2003), which may weaken the triggers for medicalizing it.

In sum, the relations between unemployment, precarious work, and mental health care use need to be investigated from a more sociological viewpoint, which goes beyond the biomedical model and dares to problematize the overconsumption of medical services. It is not only necessary to address these relations at the individual level. It seems equally appropriate to know whether, how, and why (1) the prevailing social norm of unemployment, (2) labor-market conditions and changes therein, and (3) the provision and accessibility of health care and social protection for the unemployed, drive the mental health care use of the unemployed – net of their mental health status – differently in different countries.

2. Objectives

When studying the relation between unemployment and health care use, two strands of research literature emerge in the foreground. The first, adopting the biomedical model, applies a need-based approach (McAlpine, 2007). To date, the majority of empirical studies have been situated in a social-epidemiological or a health economic framework, examining to what extent healthcare use is based on need, thereby identifying facilitating factors and barriers. This is termed the Behavioral Model of Healthcare Use (Andersen, 1995). However, this approach is insufficient to understand and explain the relations between employment status and mental health care use. Although its focus on inequalities is related to core questions of sociology, it also narrows down the relation between sociology and health care by neglecting the impact of broader societal processes, such as medicalization. The approach ignores the fact that society and the organization of health care itself can create health problems and the categorization of life problems as ‘diseases’. When applied to the unemployed, the biomedical model hypotheses that the higher their medical need, the more medical care is sought and used by them. This model also addresses the issue of unmet need due to social factors and barriers (Alonso et al., 2007). The unemployed are considered to be an important risk group for unmet need (Ahs, 2006), because they often perceive more thresholds to seeking health care, such as financial barriers.

The second strand accentuates the medicalization of society and the asymptomatic use or overuse of health care (Conrad, 1992). It pays attention to the increasing use of psychotropic

drugs in post-industrial countries and warns against the medicalization of social problems, such as unemployment (Holmqvist, 2009). There are indeed some empirical indications of the higher use of professional care and prescription drugs among the unemployed, irrespective of their actual (mental) health (Bijl & Ravelli, 2000). The medicalization perspective, also termed the medicalization critique (Lupton, 1997), has a sound theoretical foundation (Conrad, 1992; (Conrad & Leiter, 2004), although it has been criticized because of the difficulty of translating it into empirical work (Christiaens & van Teijlingen, 2009). As a result, the vast majority of existing empirical research has been restricted to adopting the biomedical model.

Only in recent years, have a few researchers tried to test the propositions of the medicalization perspective in an empirical way. A recent study attempted to incorporate the medicalization perspective, by examining the use of health care and medication in relation to work-family conflict (Christiaens & Bracke, 2014). This study concludes that medical care is used more by women experiencing work-to-family spillover, irrespective of their self-reported health. This observation is explained by the medicalization hypothesis, suggesting health care is used not merely as a response to health problems, but as an easy solution to stress. Research studying other vulnerable socioeconomic groups is still lacking.

Another worrisome observation in medicalization literature is the lack of comparative research (Olafsdottir, 2007). Medicalization is mostly explored in one context – in particular in the USA – and there is almost no research that has investigated cross-national variation in support for the medicalization hypothesis. Nevertheless, identifying the context in which social phenomena occur to a greater or lesser degree, and investigating which policies can shape opportunities for or restrict the process of medicalization, may improve the understanding of it (Olafsdottir, 2010).

In this research project, I examine both unmet need and overuse, by integrating the opposing strands (the biomedical need-based approach and the medicalization hypothesis) in existing scientific literature. These are specifically applied to the relation between unemployment and mental health care use. My contribution consists of combining different levels of analysis to evaluate the hypothesis that medicalization – as a cultural transformation that varies across countries, regions, and several institutional settings – affects the health behavior of individuals, such as contacting medical professionals and taking medication. Research

integrating the two perspectives – biomedical and medicalization – can also develop more nuanced implications for future policy. Whereas the biomedical model mainly strives to address barriers in the health care system (Alonso et al., 2007), the medicalization model can highlight how the broader organization of society and the health care system itself can cause mental health problems, rather than solve them (Christiaens & Bracke, 2014).

In sum, in this doctoral thesis I aim to answer the following overarching research questions:
How is precarious employment status (unemployment, job insecurity) related to the use of medical care and medication for mental health problems? To what extent can we attribute this relation to differences in mental health status? (Individual level).
Does – and if so, how, and to what extent – the relation between employment status and mental health care use across Europe, depend on the macro-socioeconomic context and changes therein (macroeconomic level), the institutional context (institutional level), and the prevailing social norm of unemployment? (Societal level).

These research questions are studied in light of the economic crisis in Europe. In the aftermath of the crisis, unemployment has become more widespread and more randomly distributed. However, large differences in unemployment rates occur across and within European countries (Eurofound, 2013). Moreover, there is a great deal of variation in terms of social protection for the unemployed, health care systems, and labor-market conditions and policies. This variation creates adequate opportunities for my research objectives, and offers advantages for cross-national comparative research. Variation in health care use, and in the relation between unemployment and mental health care use, is therefore not only associated with a variety of factors seen as individual attributes (age, gender, education level, etc.) but also of system and institutional factors, which in turn are conditioned by the general political, economic, and cultural characteristics of society. By studying the relations in a broader economic, social, and institutional context, and under changing macroeconomic conditions, I hope to improve understanding of "the medicalization of unemployment" as a social phenomenon and to contribute to existing medicalization literature by using a macro-sociological and comparative approach.

3. Outlining

This thesis is structured as follows. I start by framing the biomedical approach to health, and especially to health care use, on the one hand and the medicalization perspective on the other hand (**Chapter 2**). Their historical roots and developing processes are described briefly and are situated in the broader scientific field. In these chapters, I show that both strands in the literature have a long and dynamic tradition, have been interactive with and responsive to the changing social context, and have not always been the opposites of each other.

I begin with health in general, but throughout the outlining of both perspectives, I will particularly shed light on mental health and mental health care use. Therefore, the viewpoint on mental health and illness from both approaches will also be addressed. Mental health is broadly defined as a multidimensional concept, with a positive and a negative dimension referring to the division between distress or mental ill health, and well-being or mental health (Payton, 2009). As I am particularly interested in mental health care and medication use by the unemployed due to emotional and psychosocial problems, I focus on the negative dimension in terms of perceived distress. This is defined as the experience of emotional suffering (Mirowsky & Ross, 1989), and is observed by indicators of psychological and emotional upset, such as depression and anxiety-related feelings. Depressive and/or anxiety-related symptoms and high levels of distress are therefore considered as an indicator or proxy of the need for mental health services.

After discussing the limitations of the two theoretical perspectives, I try to integrate them in order to obtain a cohesive theoretical framework for an empirical application regarding the mental health care consumption of the unemployed. Before this empirical application (in **Chapter 4**), a brief literature overview is presented on the relation between unemployment and precarious work status on the one hand, and mental health and mental health care use on the other hand (**Chapter 3**). The key concepts are explained, and I present a summary of what is already known. I also provide the common explanations that are given for these findings. One general conclusion is that evidence concerning the negative relation between unemployment and mental health is convincing, whereas more attention needs to be paid to differences within the group of the unemployed and to the relation between precarious work and mental health problems. Moreover, research that focuses specifically on the relation with mental health care use is notably scarce and the results are inconsistent. Most studies conclude

that the unemployed have a higher consumption of mental health care and medication than the employed, because they suffer more from mental health problems, and often have fewer alternative resources to cope with this increased level of distress. Nevertheless, despite their higher use of mental health care, the unemployed still seem to perceive more unmet need.

In **Chapter 4**, components of the biomedical approach are integrated into the medicalization perspective to create a useful theoretical framework, which I apply to the mental health care use of the unemployed. This application also includes a deeper exploration of the relation between unemployment and mental health care use on three higher levels: The societal level, the macroeconomic level, and the institutional level. For the societal level, I report all normative factors. The macroeconomic level refers to the economic climate and labor-market conditions. In particular, the impact of changes in these economic conditions by the economic recession are highlighted. The institutional level concerns social policies and services; specifically, unemployment policies and health care services.

Subsequently (**Chapter 5**), I present my specific research aims and how they are carried out in the five empirical studies (PART II: **Chapters** 7–**11**). However, in **Chapter 6** I first provide some information about the methodology, which includes the datasets used, the most important measurements, and the analysis techniques I used in order to test my hypotheses. I conclude in **Chapter 12** by discussing the results of the five empirical chapters, the limitations, and suggestions for future research, as well as the implications for medical sociologists and policymakers.

CHAPTER 2

The biomedical approach versus the medicalization perspective

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1. The historical roots and main principles of the biomedical model

After the French Enlightenment, a period of new social conditions appeared. Processes of secularization, industrialization, and bureaucratization of society coincided with an uncritical belief in science and the popularity of positivism. The modern society arose; characterized by progress, rationalization, mass consumption and production, and enhanced control over nature. These changed social conditions enabled the professionalization of medicine and the development of medical knowledge. In line with the medical rationalization of human bodies, and as a result of a synergy between medicine and science, the first principles of the biomedical model arose (Lacrouse, 2006). The inspiration and logic for these principles were drawn from the natural sciences.

The biomedical model originates from the conclusion that all diseases have a specific cause (i.e. a pathogenic agent such as a virus or bacteria) and result from cellular abnormalities (Wade & Halligan, 2004). The specific cause resides in a dysfunction of bodily processes (Engel, 1977). The model also includes a set of beliefs (Wade & Halligan, 2004), such as that the real causes of disease (objective) and the personal experience of illness and suffering (subjective) are distinct, and therefore they can and must be separated from each other. There is also a belief that by using a scientific process of empirical observation, knowledge about the real objective causes of a disease increases. In addition, the model is supported by the mind-body dualism, whereby all diseases arise from an underlying abnormality within the body; hence, the realm of the mind has to be separated from the realm of the body (Engel, 1977).

Mental disorders were also addressed from this biomedical framework, and biomedical psychiatry appeared, based on the scientific study of psychiatric problems as diseases of the brain tissue (Bracken et al., 2012). This biomedical approach to mental health problems is also called the technical paradigm. In this, mental health problems can be mapped and categorized with the same causal logic used in the rest of medicine. Through the nineteenth and twentieth centuries, psychiatry was committed to the idea that mental health issues are

best understood through the biomedical idiom that problems concerning feelings, thoughts, behaviors, and relations can be studied with the same sort of scientific tools used to investigate problems with our livers and lungs (Bracken et al., 2012). Anything that cannot be reduced to bodily dysfunction is not a real disease, and hence falls out of the scope of the biomedical model. Although other factors may influence the consequences of a disease, these factors are not related to its development or manifestation. Relations, meanings, values, cultural beliefs, and practices are not ignored, but become secondary in importance.

In sum, the core tenet of biomedicine and biomedical psychiatry is the reduction of illness and mental illness to a "lesion". This malfunction in the workings of the body can be objectively determined and diagnosed (Armstrong, 1987). Relying on this assumption implies that illness and mental illness can be studied independently from and outside of society. The fact that mental illness is localized to a lesion inside the body has also ensured medical dominance, because only the physician can have access to it (Armstrong, 1987).

The biomedical model in health care research

The biomedical model has also dominated in the field of health care research during recent decades (Wade & Halligan, 2004). Patients are subservient to medicine, because they are incapable of helping themselves. If they are confronted with a malfunction of the body, they are assumed to seek care from medical professionals, because the latter are the only ones with the competence to identify this malfunction (Armstrong, 1987). Although seeking medical help when needed and cooperating with treatment are expected, the patient is considered a passive recipient. Moreover, because all diseases give rise to symptoms, the need for care is assessed by symptoms. The greater the number of symptoms and the more severe they are, the greater the need for care. Within the biomedical model, this is seen as the rationality of the biomedical profession, and other factors that influence the health care use of patients are considered to be irrational (Buetow, 2007). The professionals use their power to produce a form of social control that legitimates and reproduces their dominant values and expectations regarding the rationality of health care use. This has led to a strong need-based approach, which determines the perceived importance of symptoms and the subsequent use of medical resources (McAlpine, 2007). This rational choice model underpins traditional individualistic health care models, such as the still dominant socio-behavioral model in the sociology of health care attendance, and the economic rational choice model (Buetow, 2007).

To date, the majority of empirical studies on health care use remain situated in a social-epidemiological or a health economic framework, both of which are based on the biomedical, need-based approach. The focus is on health status in these models, because this determines the need for care, although other correlates are also included, which are seen as social factors. In general, the models examine to what extent healthcare use is based on need, thereby identifying facilitating factors and barriers (Behavioral Model of Healthcare Use (Andersen, 1995)). The issue of unmet need is also addressed, because for example the economic model refers to a lack of economic resources as a possible threshold for using care (Alonso et al., 2007).

Psychological and sociological influences

Over the years, the strict biomedical model has been challenged, because it does not take into account the psychosocial, behavioral, and sociocultural dimensions of ill health phenomena (Magi & Allander, 1981). Therefore, the biomedical model has been adapted to a more bio-psychosocial model, by including more factors that are explicitly psychological and social. Before the 1970s, there was no clear boundary between medical sociology, social psychiatry, and psychiatric epidemiology (Rogers & Pilgrim, 2011). During the environmental phase of psychiatry, there was even an active collaboration between social psychiatry and medical sociology, because both disciplines criticized the strict biomedical model due to its deterministic and reductionist nature. It was argued that health behavior is not always rational, and that need or illness characteristics do not fully explain variations in treatment (McAlpine, 2007). Psychological and social factors may influence a patient's perceptions and actions, and therefore the experience of what it feels like to be ill and whether treatment is sought or not (Wade & Halligan, 2004). The resulting new social-cognition models, such as the health belief model (Becker & Maiman, 1975) and the theory of reasoned action (Ajzen & Fishbein, 1975), highlight the role of personal experiences and beliefs in health care use, alongside financial means, as facilitating or restricting determinants of the process of health care use. Personal experiences, psychological factors (emotions, cognitions), and life circumstances have also become central with regard to the experience of illness. Hence, illness is the basic experience for both the doctor and the patient; it cannot be reduced to disease and its manifestation as a syndrome. Supporters of the bio-psychosocial model try to adopt a more holistic approach, aimed at enhancing the reliability and effectiveness of the diagnosis and treatment process.

Although the bio-psychosocial model was meant to be anti-reductionist, it remained relatively individualistic and reductionist, because social circumstances are believed to operate via personal experiences and the doctor-patient relation. The bio-psychological model also strengthened the traditional biological model, and at the same time it ensured the continued subsidiary status of the social sciences (Armstrong, 1987). It is the study of biological paradigms within social parameters. Later, a more sociological approach led to an expansion of these classic individualistic models through the integration of the social network into the analysis (McAlpine, 2007). Models such as the Network Episode Model (Pescosolido, Gardner, & Lubell, 1998) and the Social Organization Strategy (Pescosolido, 1992) pay attention to the impact of social support and the individual's social networks on illness behavior, and are no longer restricted to the patient-doctor interaction. Studies have demonstrated the influence of the social network with regard to perceiving and interpreting symptoms, seeking help, and in the process of recovery or adjustment to changed circumstances (Finlayson, 1976; Horwitz, 1978).

But still … we are missing something

Despite all the psychosocial adaptations to the biomedical paradigm, it could still be criticized. The social determinants of health and health care use continue to be considered as operating in addition to the core processes that the biomedical model focuses on (Armstrong, 1987). The reductionist view prevails, and the models are mainly need-based and focus on individual health behavior. Consequently, they unavoidably include a particular moral explanation, by implicitly referring to notions of the responsibilization of the individual. Treating health behavior as a matter of individual choice and responsibility marginalizes its collective characteristics and sociocultural influences (Frohlich et al., 2001). In addition, this individualization perspective legitimizes public health and policy strategies that ignore the complex structural issues underpinning the political economy of health (Cohn, 2014).

In sum, the common symptoms-based or need-based models overlook critical social processes that facilitate, delay, or impede people using health care or medication (McAlpine, 2007). Many studies that have documented social correlates of treatment simply include a number of variables in multivariate models alongside illness-related characteristics. If the social, economic, and psychological factors emerge as significant correlates of treatment, this argues

for the importance of considering the social context of people's lives with regard to understanding help-seeking behavior (Magi & Allander, 1981).

Policy and practice interventions in the field of mental health based on this perspective are aimed at closing the treatment gap. The central assumption is that treatment in the medical sector is appropriate and helpful for people experiencing psychological distress or other mental health problems. However, while this research is very informative, studies lack a coherent theoretical framework and ignore issues such as overuse. If they were to find empirical indications of overuse, possible explanations would be sought at the individual level. There would not be a critical reflection about the organization of health care and major societal processes. The dominant need-approach based on the biomedical model requires an integration of theories drawing attention to the possibility that there are many people currently in treatment due to their social circumstances, rather than their experience of illness. McAlpine and Boyer (2007) have already made the claim that the potential of these theories to investigate and explain excess-use of mental health services may serve future work.

2. The rise and development of the medicalization perspective

Professionalization of medicine as the starting point of medicalization

The process of medicalization began during the late seventeenth and early eighteenth centuries, in parallel with other large-scale social processes such as the rise of states, the arrival of industrialism, the development of science, and the implementation of public health programs (Bell & Figert, 2012). The shift toward medicine as an institution for social control was part of the broader process of modernization (Bell & Figert, 2012; Rose & Miller, 2010). Medicalization can be considered the product, as well as the cause, of societal faith in medical knowledge and practice (Ballard & Eslston, 2005). These new social conditions were also the driving forces behind the professionalization of medicine, making the position of the medical professionals stronger. Medical definitions are legitimized by the presence of physicians, as they decide who fits into the "sick role" (Conrad & Schneider, 1980). Over the years, the social control function of medical professionals has increased. They have largely taken this control function over from the family, the church, and the courts. Medicine has become in control of an increasing number of domains of daily life, such as birth, death, menopause, and menstruation.

Parson (1951) was one of the first authors to conceptualize the medical system and medicine as an institution for control. Within the concept of Structural Functionalism, these institutions are seen as functional and facilitating the social order and stability. The sick cannot perform their normal roles in society and they therefore threaten social stability. By taking on the sick role, they adhere to specific rights and obligations. They are excused from social duties such as work, and they are no longer held responsible for their condition. However, they should want to get well and therefore seek help. Medicalization in this regard means that a growing number of bodily or mental conditions lead to the sick role.

Medical imperialism

In contrast to structural functionalism, conflict theoreticians focus on negative aspects of the social control by medical professionals of problems, behavior deviating from the norm, and abnormalities. They consider the relation between physician and patient more in terms of power relations (Zola, 1976), whereas symbolic interactionism studies in particular the interactions between patient and physician at the individual level. Foucault was one of the first – together with Zola (1976) and Illich (1974, 1975a, 1975b) – to refer to the growing social control function of medical professionals as "medical imperialism" (Conrad, 1992, Rose, 1996). Although his work focuses on the power relations between physicians and patients, Foucault – in the same way as the conflict theoreticians – is labeled as a post-structuralist.

Foucalt saw medicalization as a modern mechanism of power and as a process which was co-constructed alongside modern capitalism (Bell & Figert, 2012). In line with post-structuralism, he rejects causal reasoning, truth claims, and confidence in an independent reality, which makes him critical toward expert medical knowledge (Rogers & Pilgrim, 2011). His work addresses the relation between power and knowledge, and how they are used as a form of social control through societal institutions, such as the medical institution, whereby patients are perceived as passive victims without agency. Later, in the second generation of the medicalization literature (Christiaens & van Teijlingen, 2009) (see below), the importance of autonomy and empowerment of the patients in health care is highihligthed. Michel Foucault and Nicolas Rose (who has actualized the work of Foucault) have considered this empowerment as only one more stage in the rise of biopolitics and governmentality (Devisch, & Vanheule, 2015). Patients are considered to manage their medical condition (using

medication, consulting medical profesionals, healthy life styles) or should be trained towards 'active and responsible agents'. The individuals are free to choose, but also obliged to be free, and their choices and value systems are very subtle and powerful governed and influenced (Rose, 1996). With the idea of empowerment, power of the government, medical institutions and pharmaceutical sector, has not been abandoned, but it is more diffuse, heterogenous and integrated in subtle apparatus of behaviour strategies (Devisch, & Vanheule, 2015).

Sociological imperialism

Since the 1970s, medical sociologists have refused to continue to remain in a subordinate position to medicine. They have been striving for their own position as part of a scientific discipline within health research (Rogers & Pilgrim, 2011), while continuously problematizing medical imperialism. The previous good, and even constructive, relation between medicine and sociology (see above) went sour, and the sociologists took a different epistemological direction. There was a general trend for sociological criticism of psychiatry; not only criticism of the social control role of psychiatry – and the medical professionals – but also of its knowledge base.

On the one hand, are the psychiatric perspective and psychiatric epidemiology. The psychiatric perspective returns to the roots of medicine, by once again referring to the importance of the biomedical model. Psychiatric epidemiology tends to emphasize the beneficial role of equitable access to services. They became the study of need and unmet need. On the other hand, is the sociology of health and illness – or of medicalization – which became inclined to problematize overuse. Sociological studies on medicalization accumulated and the sociology of health and illness/medicalization went far beyond psychiatry (Rogers & Pilgrim, 2011). The medicalization perspective, sometimes referred to as the medicalization critique, has acquired a central stance in sociological writings on health, health care use, and on the medical profession (Lupton, 1997). Medicalization theories have challenged the critique of the medical sociology as being atheoretical. It became the sociology of medicine, instead of its prior role as a sociological contribution to medicine (Rogers & Pilgrim, 2011). Sociology has increasingly turned away from medical positivism and the biomedical model since 1970.

Another vision on mental health

According to the biomedical model, mental health can be seen as the absence of illness or disease (Fryer, 1984). Throughout the 1980s, psychiatry has promoted diagnosis – with its language of categories – as the pre-eminent measurement for psychological problems (Mirowsky & Ross, 1989). The measurement represents a dichotomous way of thinking, and the idea that mental illness is a biological condition, which is ether present or absent. It aims to fit people into diagnostic categories created by psychiatrists or other medical professionals. Receiving medical help is then conditional on having been diagnosed, which is mostly based on the recognition of symptoms. Health sociologists argue that although the use of diagnostic categories may be helpful for many physical health purposes, it poorly fits the reality of mental health problems (Mirowsky & Ross, 1989, 2002).

Psychiatry and public health first understood the meaning of health through a reductionist and strict medical approach, in which health is the absence of disease. By contrast, health sociologists are more convinced by a relatively holistic and multidimensional approach (Ormel, et al., 1995; Vilhelmsson, Svensson, & Meeuwisse, 2011). Mental health problems are not discrete, and a dichotomous measurement is – for the majority of people – not sensitive enough to describe their actual, subjective experience. Mental health is a broad concept and very difficult to measure (Mirowsky & Ross, 1989). Sociology considers mental health to be a multidimensional concept, which refers to a continuum instead of categories of being ill or healthy. In this way, the sociologists further distanced themselves from the medical sciences.

Over the years, psychiatry and public health have changed their dichotomous thinking, because one of the consequences of this view was that people who fall just outside the category of illness do not receive the help they might need. However, this dimensional view and the shift toward a more holistic approach did not fully displace categorical reasoning in psychiatry: It is still visible, for example, in the Diagnostic and Statistical Manual of Mental Disorders (DSM). Categories and dimensions have been preserved more or less together, and diagnostic specificity remains a medical necessity for intervention. Even when social psychiatry shifted from a categorical to a dimensional view of mental health and illness, the clash between psychiatry and medical sociology remained (Rogers & Pilgrim, 2011). In addition, Vilhelmsson and colleagues (2011) have argued that the new public health and the

more holistic approach in psychiatry may seem to be explicitly opposed to medicalization, but actually, they could implicitly work as a route toward increased medicalization. This may occur if and when a societal focus on medical measures and remedies remains prominent. Many types of mental ill-health problems could then increasingly be viewed as medical problems, even if they had not been defined as disease problems.

The social constructivist approach and dynamic meaning of medicalization

To date, most studies of medicalization have taken a social constructivist approach. The focus is on the construction of new medical categories and the subsequent expansion of medical jurisdiction, such as studies into the medicalization of hyperactivity, menopause, post-traumatic stress disorder, and alcoholism (Conrad, 2005). Medical sociologists often point to professional groups such as the American Psychiatric Association (Bell & Figert, 2012) – and their well-known DSM – as major drivers for the social construction of disease. In the social constructivist tradition, the use of qualitative research techniques is more appropriate, because in-depth information about meanings and definitions is being sought. It is the social constructivist nature of medicalization, in combination with the multi-dimensional and dynamic interpretation of medicalization (Ballard & Eslston, 2005), that explains the lack of translation into specific measurements or scales that enable empirical testing of the proposition of the medicalization perspective.

Conrad (1980), for example, noted three levels of medicalization: First, on the conceptual level, medical language is used to define (non-medical) problems and then medical models are applied to identify and order problems, not only by professionals, but also by lay people, government, and others. Second, on the institutional level, medical definitions are legitimized by the presence of physicians, who function as gatekeepers. They decide who takes the sick role and who does not. This also refers to medical collaboration with other authorities to obtain legitimacy for the management of problems. Last, on the interactional level, medicalization occurs within the doctor-patient relation, for example when a medical treatment is prescribed for a social problem (e.g. Burn-outs). The problem is defined as medical and medical treatment is administered.

According to the social constructivist tradition, it are the definitions, rather than the actual behaviors, that are essential for medicalization. The meaning attached to the behavior changes

with increasing medicalization (Christiaens & van Teijlingen, 2009). The construction of new medical categories coincides with a new perception of reality as a new frame of reference. Defining a problem as medical, means that physicians become authorized to use medical language to describe it, medical knowledge to understand it, and medical interventions to treat it, hence gaining control over it. The three levels identified by Conrad overlap respectively with the well-known macro, meso, and micro levels. Most studies on medicalization, however, are restricted to only one of these levels.

Over the years, and corresponding to changing social conditions, the interpretation and meaning of medicalization have also been modified. In the beginning – the first generation of medicalization – the focus was on power and the social control function of medicine. The medical professional was the main power actor (Christiaens & van Teijlingen, 2009). Later, the further development of technology and the rise of biotechnology not only facilitated the process of medicalization, but became driving forces. The second generation of medicalization started, according to Conrad (2005), when the forces driving medicalization had changed. Biotechnology and the pharmaceutical industry became major players, and as a result, medical professionals lost their position as the only key actors. There was a diffusion of power and increasing complexity. Patient organizations, insurance companies, and the pharmaceutical industry were the new key actors.

This second generation was nourished by roughly the same ideas as those of the postmodernism theorists (Ballard & Eslston, 2005). Postmodernism refers to the end of the faith in meta-narratives, such as structuralism and functionalism. A trend toward more critical theories took place within medical literature, such as feminism (Oakley, 1984; Belle, 1987) and Marxism (Navarro, 1975). They criticized the expanding dominance of the individualistic medical model and the adoption of personalized medical solutions, such as the consumption of antidepressants for problems with a social cause (Ballard & Eslston, 2005). Others talked about late modernity or the development of the reflective or risk society, characterized by more insecurities and risks on the one hand, and more available knowledge on the other hand (Clarke, Shim, Mamo, Fosket, & Fishman, 2003). In this discourse, the patient was no longer considered a passive victim, therefore patients gained agency and became active players and consumers.

In literature about medicalization, there has been a shift in recent years from a focus on control to a focus on transformation and optimization (Clarke & Shim, 2011). The concept of medicalization has been gradually extended to include social problems, and conditions are understood as undesirable or stigmatizable differences (Clarke et al., 2003; Conrad, 2006). In the beginning, medical innovation was aimed at attempting to cure diseases. Now, it focuses on enhancement or prevention (Clarke & Shim, 2011; Clarke et al., 2003; Olafsdottir, 2007). In addition, "healthy people" have become the target group. The new objective is to make them better and not only to cure them, for example by detecting the risk factors for diseases, or as Rose said in his work *The politics of life itself*: "the asymptomatic or presymptomatic ill" (2001, p. 12). Some social researchers even argue that the meaning of medicalization has changed so much that we have to use a new concept, such as biomedicalization (Clarke & Shim, 2011), pharmaceuticalization (Bell & Figert, 2012; Williams, Gabe, & Martin, 2012), or disease mongering (Moynihan, Doran, & Henry, 2008). They claim that postmodernity requires postmodern theories and concepts.[1]

To conclude, as a result of the very dynamic meaning of medicalization and its multidimensional character, medicalization research is mostly descriptive, and little effort has been made to test the generated hypotheses by means of empirical research (Christiaens & van Teijlingen, 2009).

Neo-structuralism and middle-range theories

In the twenty-first century, there is growing awareness of the need to understand the social roots of health and illness, and a shift from the dominant agency-oriented paradigms toward a more neo-structural perspective (Cockerham, 2005, 2013). More attention is being paid to the organization of the health care sector and the impact of the broader socioeconomic conditions on the process of medicalization. The health care sector, which initially had the objective of making people better, is now being criticized because it actually *creates* illness, by extending categories of diseases and the negative side effects of drugs. Illich (1975a, 1975b) previously described the process of medicalization with his concept "iatrogenesis", which refers to the

[1] Although I am aware of the qualitative changes to the concept of medicalization, throughout this dissertation I always use the term medicalization (as was also done by Conrad) to overcome additional complexity, and because my dissertation is not about the conceptual definition of medicalization. For research into medicalization at the conceptual level, I refer to experts in that domain, such as Clarke (Clarke & Shim, 2011; Clarke et al., 2002) and Bell & Figert (2015).

organization of health care that – instead of promoting health – causes illness (Christiaens & van Teijlingen, 2009). At the same time, lay people appear to have become at least partially responsibilized in relation to their health and are looking after it by seeking medical care (Ballard & Eslston, 2005). The fast development of new, expensive medical technologies combined with an aging population have also contributed to concerns about the increasing cost of health care in affluent societies. The crisis of the welfare state has stimulated processes of privatization and deinstitutionalization of the health care sector, as well as the promotion of self-care (Ballard & Eslston, 2005).

Giving more autonomy to patients can affect medicalization in two ways. First, it may make patients more skeptical and critical, which can lead to demedicalization. Patients sometimes refuse medical treatments, or actively look for alternatives (e.g. homeopathy, more activity, etc.). Second, greater autonomy also means that individuals are more responsible for their own health (Devisch & Vanheule, 2015). A related worrying feature of medicalization is the inherent transformation of social problems into medical disorders. In line of the translation of unequal beginnings into unequal capabilities, there is also a shift whereby social problems such as poverty, low education, and unemployment are more likely to interpreted as personal failures. The individualization of these social problems may accordingly trigger medicalization. According to Illich (Illich, 1974, 1975a, 1975b), this can be described as social iatrogenesis. This refers to the negative effect of the organization of health care at the social level, such as the individualization of social problems by medicalizing them, and an increased dependency on pharmaceuticals (Christiaens & van Teijlingen, 2009). If it is claimed that depressive symptoms have nothing to do with unemployment or interpersonal conflicts, such as divorce, drugs provide an individualized solution to problems that often have social and structural origins (Busfield, 2006). In such a case, the government is relieved from involvement in expansive and complex social policy actions (Ballard & Eslston, 2005). As a result, the focus on individual responsibility and health behavior legitimizes the state having increasingly less responsibilities for citizens' welfare.

According to Cockerham (2013), medicalization can be seen as a middle-range theory, like the fundamental cause theory and the life course perspective, which also tend to take a neo-structural approach. Grand theories, such as Parsons' system theory – of which the theory about the sick role is one element – are well developed and try to encompass the whole of society and all its mechanisms. They have contributed greatly to sociology by providing

theoretical knowledge, ideal types, and conceptual frameworks, but they are not easily empirically tested. By contrast, middle-range theories, such as Merton's deviance theory, are used when trying to explain delineated issues, which can be more easily tested empirically. Middle-range theories have an ambition to go beyond causal description, and attempt to find causal explanations for social facts. Social sciences not only have to explore the relations between determinants (causal descriptions), but also the mechanisms of the relations (causal explanations) (Link, 2015). Converting the medicalization theory – as a critical and social constructivist theory – to a middle-range theory may open some avenues to it becoming a more quantitative and comparative research approach. Nevertheless, in order to make the theory empirically testable, the pressing question of how to measure medicalization remains.

How to study medicalization in an empirical quantitative way

Only in recent years have a few researchers attempted to reconsider the medicalization theory in such a way that its propositions can be empirically tested (Christiaens & van Teijlingen, 2009). To test the medicalization hypothesis, a more positivist approach is required. One of the methods is the institutionalization approach, for example using the number of psychiatric hospital beds as an indicator of the medicalization of mental health, based on the assumption that in medical institutions, the power of the medical professional is the strongest (Olafsdottir, 2007).

Olafsdottir's research (2007) on the medicalization of mental health problems relies on this institutionalization approach, and on the assumption that using medical resources for mental health problems can be considered as representing the medicalization of mental health problems, without controlling for the actual need for mental health care. She explored the relation between the number of medical professionals in a country – as doctors are considered the dominant power actors in medicalization (Conrad, 1992) – and the number of psychiatric hospital beds. Contrary to her expectations, she found that in advanced industrialized countries, the higher the number of practicing physicians, the lower the number of psychiatric beds (Olafsdottir, 2007). However, the institutionalization approach can be criticized, because it is based on the traditional medicalization perspective of the first generation, which considers medical professionals as the only power actors (Clarke & Shim, 2011). Today, this assumption needs to be relaxed, considering the trend of deinstitutionalization in the European mental health sector (Hermans, de Witte, & Dom, 2012) and multiple power actors – the

pharmaceutical industry, policymakers, patients, and health care consumers – that come to the fore in the process of medicalization (Clarke & Shim, 2011; Conrad, 2005; Conrad & Barker, 2010).

Another empirical study examined the medicalization of sleeping problems (Moloney, Konrad, & Zimmer, 2011). In the study, Moloney refers to the medicalization of sleep as a trend, in which complaints of sleeplessness are outpaced by an increasing incidence of insomnia diagnoses and treatments over time (Moloney, Konrad, & Zimmer, 2011). In contrast to the study by Olafsdottir (2007), Moloney (2011) controls to some degree for the level of need for treatment, as he takes sleeplessness complaints into account. However, both studies have in common that they use aggregated data. The shortcoming of this macro-level approach is its inability to disaggregate the relation to explain the individual variation in health outcomes.

The study by Christiaens and Bracke (2014) into the medicalization of work-family stress uses individual-level data, and therefore avoids the possibility of ecological fallacy (Robinson, 1950). They created a combination of the need-based approach and some components of the medicalization perspective. Moreover, a more conservative measurement of medicalization was used, by considering only indications of "overuse" as an indicator for the medicalization of work-family stress. In practice, they depart from the need-based approach by relating work-family stress to medical care use, and exploring whether this relation can be ascribed to the need for care. When individuals who experience work-to-family stress use more medication than those without work-to-family-stress – irrespective of their self-reported health – this use of medical resources beyond need is interpreted by the researchers as an indicator of the medicalization of work-to-family stress. This brings me to ponder whether this can be extended to the health care consumption of other vulnerable socioeconomic groups. In particular, I examine the mental health care use of the unemployed and people in insecure employment from both a biomedical and a medicalization perspective, and investigate whether their social condition contributes to under or over-consumption. Accordingly, I first give an overview of the existing knowledge about the relations between employment status, mental health, and health care use.

CHAPTER 3

Precarious work and unemployment in relation to mental health and mental health care use

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1. Unemployment and precarious work

Although the lay understanding of unemployment is commonplace, the exact definition of unemployment is not straightforward. To date, there are questions about who is included and who is excluded from the "category of unemployment". The most common and official definition of unemployment is provided by the International Labor Organization (ILO) and is used by the Bureau of Labor Statistics (1994). The unemployed are defined as jobless people of working age who want to work, are available to work, and are actively looking for work. This definition is used internationally, so comparisons can be made between countries. It also enables consistent comparisons over time.[2] However, this strict definition can also be criticized, as there are claims that it underestimates the number of unemployed (Dooley, 2003; Dooley, Prause, & Ham-Rowbottom, 2000). It does not include those who are not working, who want a job, but are no longer actively looking for work. The latter are also defined as "discouraged workers". Mostly, they have given up job hunting, as they do not believe that they will find work, or they are too disappointed: Frustrated by the process of job seeking. In my dissertation, the ILO definition is mostly used, but to overcome potential criticism, in my third empirical study I compare the active with the passive – or unofficially – unemployed.

In addition, there is said to be "hidden unemployment", which is especially prevalent in a period of economic contraction (Beatty & Fothergill, 2005). This concept refers to a group of people who want to work, but have some (subliminal) health problems. As a result, in a difficult labor-market they are the first to lose their job, as they can claim sickness or incapacity benefit. Further, when the economy grows again, the healthy job seekers on unemployment benefits are the first to find new employment. Hidden unemployment is

[2] This differs from the claimant count unemployment measurement, which only includes people claiming unemployment-related welfare benefits. The ILO (1994) measurement gives a higher figure than the claimant count measurement, as it includes those who are classified as available for work but who are not claiming unemployment benefits. For example, the ILO figure may include students who are actively seeking work but may not qualify for benefits. Similarly, second earners within a household may be reluctant to claim unemployment benefits, but would be classified as unemployed under the ILO measurement as they are available for work.

especially prevalent among low-skilled workers. Recently, in some European countries – such as in the Netherlands (Koning & van Vuuren, 2006) and the UK (Beatty & Fothergill, 2015) – welfare reforms have been set to reduce disability claims with the end goal of avoiding hidden unemployment. However, a side effect of policies reducing the number of disability claimants is an increased pressure on unemployment insurance, because of reverse substitution: Hidden disability among the group of the unemployed.

Employment status is often seen as one of the key factors of a person's socioeconomic status, in addition to income and education level. According to the fundamental cause theory of Link and Phelan (Phelan, Link, & Tehranifar, 2010), socioeconomic status is the fundamental cause of individuals' health and of health inequalities. It determines the flexible resources someone has, and how these resources can be used to obtain better health. A very important difference between education and employment status is, however, that the latter is alienable and depends highly on others (Ross & Mirowsky, 2006). Unemployment is, in the majority of cases, not a conscious choice, or at least not the preferred option. It may therefore be stated to be a somewhat negative choice, as implicitly incorporated in the official ILO definition. For the majority of the unemployed it is an unwanted condition, while the perceptions of others are often different. The unemployed are too often considered to be those who *get* welfare benefits, but do not *deserve* them, whereas the disabled are instead portrayed as those who deserve benefits (Besley & Coate, 1992).

Unemployment is in particular a characteristic of the organization of society as a whole (Clark et al., 2010; Janlert, 1997). However, this does not mean that the unemployed are just a group of passive victims. Unemployment is both an individual and a social or group phenomenon. It will affect the unemployed, but also their respective family and community. Moreover, unemployment levels in society affect those who still have a job, as well as the groups outside the labor-market (Janlert, 1997). In Chapter 4, part 2 of the dissertation, this is explored in greater detail.

Recently, in response to changing labor-market conditions, an increasing number of scholars have been advocating research that goes beyond the dichotomy of unemployed/employed by also paying attention to precarious work or underemployment (Benach, Amable, Muntaner, & Benavides, 2002; Benach, Benavides, Platt, Diez-Roux, & Muntaner, 2000; Benach & Muntaner, 2007; Dooley, 2003; Fryer, 1999; Kalleberg, 2009). One of the most significant

changes in the work environment of developed countries has been the expansion of flexible labor-markets, with the emergence of new forms of employment. As the availability of standard full-time permanent jobs with benefits has diminished, the labor-market has become more segmented, and new types of flexible and non-standard work – such as temporary employment, contingent, and other non-standard work arrangements – have become more prevalent (Menendez, Benach, Muntaner, Amable, & O'Campo, 2007). This process of flexibilization of the labor-market, in combination with other trends – such as privatization, an increase in the surplus of labor forces due to global labor migration, and an increase in the participation of women – has led to more precarious work, higher unemployment rates, and more job insecurity. Precarious work has spread to all sectors of the economy. Whereas it was initially especially prevalent among blue-collar workers (Fryer, 1999), it has now become much more pervasive, and even professional and managerial jobs are precarious these days (Kalleberg, 2009).

2. Unemployment and mental health

Over the years, an extensive body of literature on the relation between unemployment and health has emerged. There are a few (well-known) review papers summarizing the findings of numerous studies about the relation between unemployment and mental health (Hammarstrom, 1994; Herbig, Dragano, & Angerer, 2013; McKee-Ryan, Song, Wanberg, & Kinicki, 2005; Murphy & Athanasou, 1999; Paul & Moser, 2009). They convincingly conclude that the majority of research shows the mental health of the unemployed is worse than that that of the employed, and that the unemployed are more likely to exhibit problematic substance use (e.g. drugs and alcohol).

This relation between employment status and mental health works in both directions. On the one hand, the selection hypothesis argues that individuals with mental health problems are more likely to be without a job (Arrow, 1996), to remain so for longer periods of time (Stewart, 2001), and/or to have characteristics such as low self-esteem and feelings of helplessness that make them more vulnerable to both unemployment and poor health (Schmitz, 2011; Schroder, 2013). Once a person becomes long-term unemployed, the probability of them finding a new job will decline, because employers generally perceive long-term unemployment as signaling a problem related to health, motivation, and/or competences. These health selection effects will be the strongest in a context of low

unemployment, because when unemployment rises during a recession, a greater number of fit and healthy people become unemployed (Martikainen & Valkonen, 1996). Unemployment will then be less dependent on pre-existing characteristics and more randomly distributed. As a result, the previous health and other characteristics of the unemployed will also increasingly resemble those of the employed.

On the other hand, the causation hypothesis posits that unemployment causes mental health problems. Several theoretical explanations are proposed in relevant literature, and these do not need to be mutually exclusive. The material deprivation theory highlights the subsequent loss of income when becoming unemployed. This loss of income may raise the thresholds for both accessing mental health care use and pursuing a healthy lifestyle (Schroder, 2010, 2013). The model also focuses on the importance of the duration of unemployment, because as unemployment persists, economic resources dwindle and less money can worsen – either directly or indirectly – the prerequisites for good health.

The relation can also be understood with reference to the stress reaction model (Zapf, Dormann, & Frese, 1996). Exposure to a stressor, such as unemployment, may result in a decrease in mental well-being. The functionalistic model of Jahoha (1981) emphasizes the latent functions of employment to explain the negative relation between unemployment and health. Being employed satisfies a psychological need: A need that must be addressed in order to maintain good mental health. Participating in the labor-market offers an opportunity for social integration and social support (Ahs & Westerling, 2006), and social networks and support are thought to influence health and health care use in a positive way (Berkman, Glass, Brissette, & Seeman, 2000). Unemployment may increase feelings of insecurity, shame, and stress, related to the loss of income, time structure, and status (Janlert & Hammarstrom, 2009). By contrast, having a job can provide a feeling of control, whereas a lack of control and the feeling of powerlessness – often related to unemployment or a passive work situation – are well-known risk factors for depression (Mirowsky & Ross, 2003). Some research also supports the coping hypothesis, which relates unemployment to poorer health via negative health behaviors used as coping styles (Roelfs, Shor, Davidson, & Schwartz, 2011). This research suggests that the unemployed try to cope with their negative and stressful condition by negative health behaviors such as smoking and problematic alcohol consumption.

More recently, several studies have shown that precarious work – including temporary employment, involuntary part-time work, jobs without a contract, or insecure employment – is also related to worse (mental) health status (Benach et al., 2014; Jin, Shah, & Svoboda, 1995; McKee-Ryan & Harvey, 2011; Virtanen et al., 2005). In a recent overview article, it is argued that the precariousness of employment should be recognized as an important social determinant, which affects health and mental health. Insecure employment is found to be similar to or even more detrimental than unemployment in terms of psychological complaints (Beale & Nethercott, 1985; Kinnunen, Feldt, & Mauno, 2003). Working without a contract and temporary work are often considered as objective forms of job insecurity (Virtanen et al., 2005). Job insecurity can be considered as the powerlessness to maintain desired continuity in a threatened job (Greenhalgh & Rosenblatt, 1984). It threatens a person's agency and perceived control (Glavin & Schieman, 2014).

3. The use of mental health care and medication by the unemployed

Although literature concerning the unemployed and mental health is abundant, the number of studies relating unemployment to health care and in particular to mental health care use is much smaller. In addition, in contrast to the findings concerning the relation between unemployment and mental health, the results are not straightforward. Therefore, I start here by providing an overview of existing research that includes employment status and (mental) health care use. Throughout the literature, three types of studies can be distinguished.

First, there is a group of studies that use the consumption of health care services or medication as a proxy for health or mental health problems. As expected, based on the findings of research into unemployment and health, most of these studies suggest that the unemployed are more likely to contact a general practitioner or specialist for health complaints, and specifically for psychological symptoms (Beale & Nethercott, 1987, 1988; Kraut, Mustard, Walld, & Tate, 2000; Kuhn, 2007; Montgomery, Cook, Bartley, & Wadsworth, 1999) or to be hospitalized due to alcohol-related conditions or mental illness (Browning & Heinesen, 2012; Eliason & Storrie, 2009; Kraut et al., 2000).

The role of unemployment as the most powerful predictor of the increase and decrease in psychiatric hospitalizations is not new, and had already been used by Brenner (1973) in his economic change model of pathology in the 1970s. Not participating in the labor-market is

also the main factor associated with the use of antidepressants to deal with mental distress (Hausken, Skurtveit, Rosvold, Bramness, & Furu, 2007). The conclusion reached by these researchers is similar to that of studies exploring the relation between unemployment and mental health: Unemployment is a crucial risk factor for mental health problems. The researchers also refer to similar explanations for their findings (see above). These studies have in common that they are based on the assumption that the mental health care use of the unemployed is purely need based. However, this logic is too simplistic and reductionist, as more underlying processes are at work; from individual determinants to broader societal mechanisms (Busfield, 2006).

The *second* category of studies consists of epidemiological research, investigating health care use, with employment status being one of the correlates in the models. Most of the studies find that unemployment is positively related to medication use (Colman, Croudace, Wadsworth, & Jones, 2008), and that the unemployed use (mental) health care services more frequently than the employed do (Abraham, 2010; Carr-Hill, Rice, & Roland, 1996). By contrast, findings from the Netherlands indicate that people who are unemployed or are disability claimants report more extensive unmet care needs for psychological and emotional problems (Bijl & Ravelli, 2000). However, all these studies have in common that they only describe this finding relating to unemployment, without paying further attention to it, or investigating potential explanations provided by medicalization literature. The epidemiological study by D'Incau and colleagues (2011) is an exception, as they investigated the relation between stressful life events – such as unemployment – and the consumption of psychotropic drugs, but without taking the actual need for mental health care into account. In their discussion, they refer to the medicalization of stressful life conditions, because they argue that it is not straightforward to assume that troubles related to employment status, work, and relations lead to the prescription and use of psychotropic drugs.

Third, there are a few studies examining the consumption of health care and medication by the unemployed or by those with job insecurity. The majority of these studies start from an agreement that inequality in the access to health services is unacceptable (Ahs & Westerling, 2006; Virtanen, Kivimaki, Vahtera, & Koskenvuo, 2006). They strive for the principle of vertical equality: Offering equal access to health care according to need (Ahs & Westerling, 2006). Some express the concern that unemployment may hinder the fulfillment of this goal (Ahs & Westerling, 2006). Based implicitly on the need approach – derived from the

biomedical model (see above) – they expect higher health care use by the unemployed, which can be explained by their higher need for care. However, they also address the possibility of unmet need, because the unemployed can be seen as a risk group, as they may perceive financial barriers to care use.

The results of these studies are far from conclusive, and often are not specific to mental health care use. The different types of care use – specialized or primary care, hospitalization or outpatient care, medication use, and being specific to psychological complaints or not – may partly explain these inconsistent results. However, some studies suggest that the unemployed have significantly more consultations with doctors compared with those in employment (Yuen & Balarajan, 1989). In addition, a few studies indicate higher antidepressant use among the employed with job insecurity (Rugulies et al., 2010) and temporary workers (Virtanen et al., 2008).

In line with the need hypothesis, some of the research can ascribe this relation as being due to depression and anxiety symptoms (Mewes, Rief, Martin, Glaesmer, & Brahler, 2013; Rugulies et al., 2010), whereas other studies state that the relation remains after controlling for long standing illness, but do not offer any further explanation (Yuen & Balarajan, 1989). Studnicka (1991), however, explicitly mentions overutilization of health services by the unemployed. He interprets this as a consequence of misdirected health-seeking behavior (Dooley & Catalano, 1984), resulting from psychological impairment. It can also be considered as "sick role behavior", adopted by the unemployed to overcome unemployment stigma, or when a medical diagnosis is needed in order to obtain benefits. However, when differentiating between the unemployed and those who are inactive because of disability or sickness, this latter explanation is not very plausible.

In addition – derived from the economic models – the time pressure argument is sometimes used to explain higher health care use among the unemployed than the employed, regardless of their health status. Being unemployed leaves a person with more disposable time, which could enable them to seek healthcare if they perceive a need for care (Ahs et al., 2012). Time constraints, on the other hand, can hinder the employed from seeking care when symptoms flare up (Verbrugge & Ascione, 1987). Nevertheless, this cannot explain the higher medication use by the unemployed, since medication can be considered as a "quick fix" for problems in order to remain functioning, notwithstanding bad health (Christiaens & Bracke,

2013). Further, among the employed with job insecurity, this explanation is inadequate, because no more disposable time is available to them than it is to the employed *without* job insecurity.

Nevertheless, evidence has been provided for unmet need among the unemployed, in particular when general health care use is investigated instead of mental health services and medication specific to mental health problems. Moreover, only a small proportion of these studies have explored the actual relation between employment status and health care use, controlled for health status or the need for care (Ahs & Westerling, 2006; Virtanen et al., 2006). Others have used an explicit question about perceiving unmet need; described as not using care when you need it (Ahs, Burell, & Westerling, 2012; Ahs & Westerling, 2006) or delaying health care due to cost (Pharr, Moonie, & Bungum, 2012). The latter is suggestive of financial issues, and it could be argued that the "real need" for health care cannot be estimated reliably by measuring the self-perceived need for care. Other proposed explanations than financial barriers for failing to seek care are feelings of shame about experiencing mental illness, perceptions of social stigma from being unemployed, or fear of receiving a medical diagnosis that could hinder the return to unemployment (Ahs et al., 2012; Bijl & Ravelli, 2000; Virtanen, 1993).

One could speculate that unemployed patients abstain from seeking care for mental problems because of the way their psychological symptoms are treated. It has previously been suggested that the unemployed are more likely than the employed to be prescribed medication for symptoms of anxiety and depression, rather than being referred (Comino, Harris, Silove, Manicavasagar, & Harris, 2000) or being offered participation in self-help groups (Ahs & Westerling, 2006). Virtanen (1993) tries to explain the higher care use among the employed than the unemployed by referring to the fact that the employed need a certificate for illness. He sees this as a concrete example of health care functioning as an institution for social control. Health care – and especially occupational health care – is bound to serve society's dominant ideas and values. In a Western capitalist society, unemployment is perceived as deviating from the norm, but for an individual, it also means freedom from work. As a consequence, the unemployed do not need a certificate when they are ill. Unemployment may free an individual from unnecessary medicalization and the domination associated with it, as well as iatrogenic health problems. Although this is a very good sociological explanation delivered by Virtanen (1993), the explanation can be questioned when considering specific

mental health care and antidepressant use, as it implies a reduction of the use of health care to the need for a certificate of illness, whereas there are many other reasons to contact a health professional.

In sum, research on the relation between employment status, and mental health care and medication use is relatively scarce. Although existing literature offers fruitful knowledge about the health care use of the unemployed, the majority of these studies are relatively outdated, not specific to mental health care, and do not control for actual (mental) health status. In addition, the lack of a well-developed theoretical framework is notable. The majority of the studies are, implicitly or explicitly, based on the need-based approach derived from the biomedical perspective. Further, unmet need is addressed, but issues such as overuse and medicalization are rarely discussed.

CHAPTER 4

Empirical application of the medicalization theory on the unemployed and their mental health care consumption at the individual and macro level

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1. The integration of the biomedical model and the medicalization perspective

In the last part (Chapter 4) of the theoretical background, a link is made between Chapter 2, where two strands of theoretical perspectives are outlined – the biomedical and medicalization approach – and Chapter 3, which includes a literature overview of existing empirical research into the relation between employment status, mental health, and care use. My main objective here is to examine overuse, unmet need, and need-based use, by integrating the opposing theoretical strands into one framework, and applying it to the relation between employment status (unemployment and job insecurity) and mental health care use. A conceptual model is developed, and three hypotheses are inferred from this model about the relation between employment status and mental health care use: The need-based hypothesis, the unmet need hypothesis, and the medicalization hypothesis. However, I start by elucidating the choice for the specific application of the theoretical model on the mental health care use of the unemployed and the employed with job insecurity.

Why applied to the mental health care use of the unemployed?

I chose to use unemployment, because unemployment and precarious work are socially relevant and very timely issues, given the recent economic crisis and excessive flexibilization processes. However, also because (scientifically) a lot is known about their link to poorer mental health, whereas with regard to their association with the consumption of psychotropic drugs and mental health services, as I have shown, existing knowledge is less consistent. The economic crisis also re-accentuated the fact that unemployment is a structural or social problem, much more than it represents personal failure. Unemployment and job insecurity have become both more widespread and more randomly distributed. It is no longer the sole territory of vulnerable groups, such as the low educated and the less healthy; it can happen to anyone.

Moreover, unemployment per se is not a medical, somatic, or health problem and not only a female issue, which makes it very interesting to address using a medicalization approach. A large proportion of existing literature about medicalization, after all, is about typical health or body-related female topics, such as menopause, menstruation, and childbearing; claiming that women's bodies are particularly vulnerable to medicalization. Furthermore, there is a large variation in unemployment, cross-nationally as well as intra-nationally. There are varying degrees of social protection for the unemployed on the one hand, and several types of health care systems on the other. Despite all this variation, however, in almost every European country, the unemployed consistently have poorer health than the employed (Bambra & Eikemo, 2009).

The strengths of the biomedical model

I argue that the biomedical and the medicalization perspective are complementary, as the strengths of each are the weaknesses of the other. The biomedical perspective has led to a need-based approach within socio-epidemiological health care research. This approach has the advantage that it can be easily converted into empirically testable hypotheses. It has a tradition of quantitative empirical research, mostly based on large survey data, which has led to some agreements about measuring need and unmet need. Measuring the need for mental health care is mostly based on perceived depressive and anxiety-related symptoms, which can be evaluated by well-known scales such as the CES-D 8 (Radloff, 19777), the MHI-5 (Ware & Sherbourne, 1992), or the EURO-D (Prince et al., 1999). These measurements are often used in social-psychiatric and epidemiological studies, they have been tested for their validity (Mchorney, Ware, & Raczek, 1993), and they enable comparative research across European countries (Copeland et al., 1999; Lehto-Järnstedt, 2003; Missinne, Vandeviver, Van de Velde, & Bracke, 2014; Van de Velde, Bracke, Levecque, & Meuleman, 2010).

Not using mental health services when individuals have reported mental health problems and mental health care is needed, is termed unmet need (Bijl & Ravelli, 2000). As already mentioned, unmet need can be measured based on an explicit question about perceiving unmet need; described for example as not using care when you need it (Ahs et al., 2012; A. Ahs & Westerling, 2006) or delaying health care due to cost or other reasons (Pharr et al., 2012). However, among the group of the unemployed, this type of measurement can be biased, as people may have used mental health care, but might still perceive unmet need. This

is possible because what the unemployed really want – but that cannot be provided by the mental health service – is a good job (Fryer, 1984). An alternative approach is to link employment status to mental health care use. When the care use of the unemployed is lower than expected, based on their higher need compared with the employed, it may be taken as representing unmet need among the unemployed. The current study relies on this latter approach.

The strengths of the medicalization perspective

Although the medicalization perspective lacks usage in empirical quantitative research, and a way of measuring the propositions, it is much more theoretically developed than the biomedical need-based approach (Christiaens & van Teijlingen, 2009). Whereas the social epidemiological tradition is relatively atheoretical, in medicalization literature, light is shed on complex social structures and cultural processes. This strand of critical literature accentuates overuse or asymptomatic health care use in society (Conrad, 1992). It recognizes that over the last decade, health and mental health have become desirable goals, and they are more and more inextricably related to individual commitment and personal responsibility (Bendelow, 2011). Processes of medicalization have isolated certain structural problems from their social roots, by considering and treating them as forms of personal failure or disability (Miles, 1987; Waitzkin & Britt, 1989). More specifically, the marginalization of the social roots of unemployment has led to personalization of the responsibility for unemployment. Stress, stigma, and other negative feelings resulting from unemployment may lead to isolated non-specific symptoms, which can be reclassified as diseases for which medical treatment is sought and antidepressants are prescribed (Holmqvist, 2009). Attention is paid to the increasing use of psychotropic drugs in post-industrial countries. Medical professionals, counselors, policy advisers, politicians, the unemployed themselves, and the whole of society tend to over-psychologize joblessness, and redefine and treat unemployment as an individual problem (Dumont, 1989). These individual treatments may function as distractions from the broader social economic and political realities in which the problem is rooted (Miles, 1987).

The combination of both models

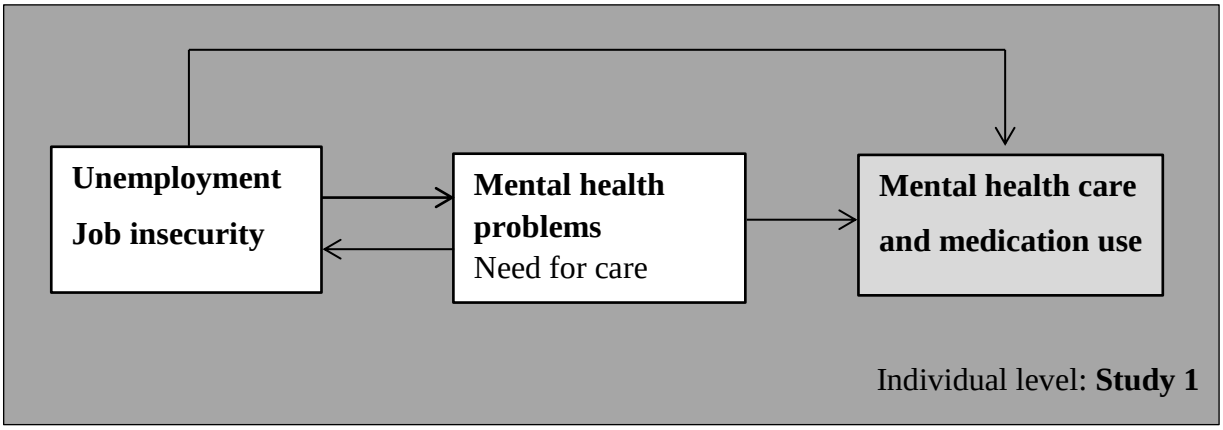
In sum, the dominant biomedical model hypothesizes that the higher the medical need, the more medical care is sought and received. Because existing research consistently shows that the unemployed and those with job insecurity have more mental health problems, and as a

result a greater need for mental health care services, higher mental health care use by them can be expected. The need-based perspective also addresses the issue of unmet need due to social factors and barriers (Alonso et al., 2007). The unemployed are considered to be an important risk group for unmet need, because they often perceive more barriers to seeking mental health care (Ahs & Westerling, 2006). These thresholds could be structural, such as a lack of financial resources or mobility restrictions, but also socio-cognitive, such as a lack of information, knowledge of the existing mental health care system, perceptions of social stigma from not being employed, or fear of receiving a medical diagnosis that could hinder the return to employment (Ahs et al., 2012; Bijl & Ravelli, 2000; Virtanen, 1993). By integrating the theoretical components of the medicalization perspective and the need-based approach, not only are need based use and unmet need addressed, but also overuse or asymptomatic use by the unemployed. The medicalization perspective posits that the unemployed have higher mental health care and medication use than expected based on their actual mental health. By combining the models, I try to go beyond the dominant biomedical model and contribute to existing medicalization literature, through empirically testing the medicalization of unemployment.

In sum, three hypotheses can be drawn from the theoretical model, integrating the biomedical and the medicalization perspective as shown in Figure 1. These hypotheses (1.1, 1.2, and 1.3) are tested in the first empirical study (Study 1).

- **Hypothesis 1.1** The *need-based hypothesis* suggests that greater professional care seeking by the unemployed and the employed with job insecurity is related to their higher need for care or their worse mental health status.
- **Hypothesis 1.2** The *unmet need hypothesis* states that the unemployed have a lower probability of mental health care use compared with the employed, irrespective of mental health.
- **Hypothesis 1.2** The *medicalization hypothesis* assumes that job insecurity and unemployment are associated with increased health care and antidepressant use, irrespective of actual mental health.

Figure 1: Conceptual model of the relation between employment status and mental health care and medication use, controlled for mental health status



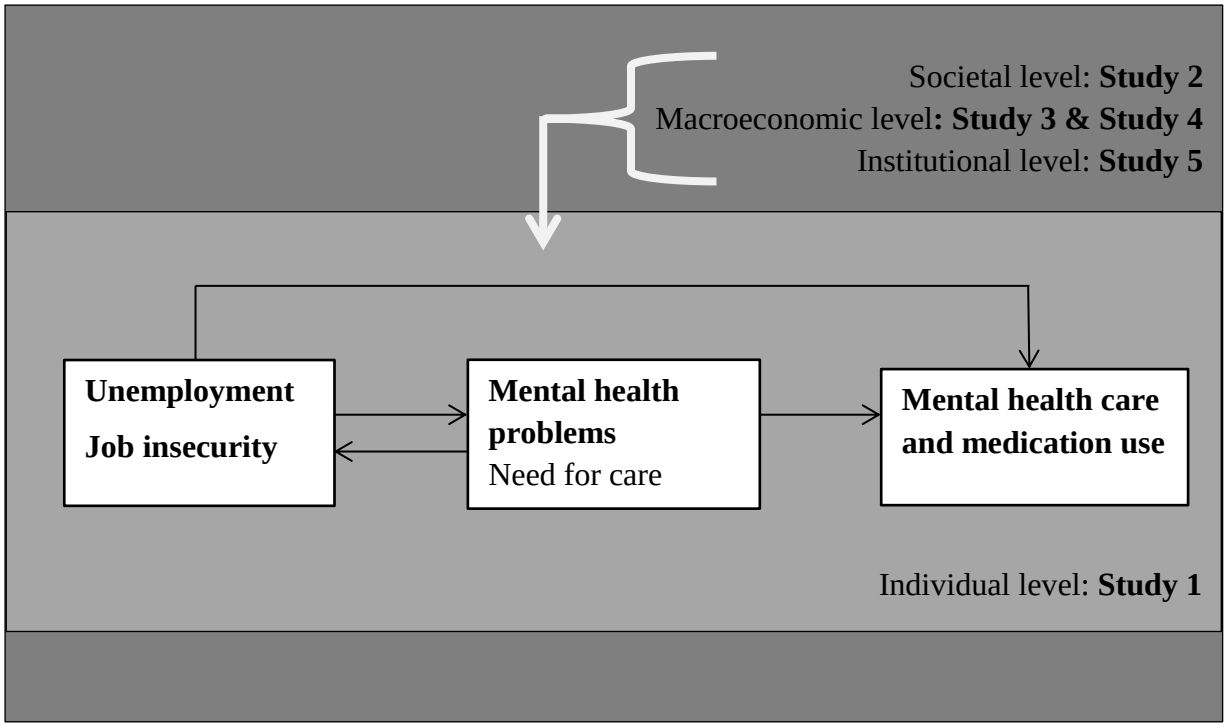
The innovativeness of the current study is to measure and interpret mental health care utilization beyond actual need, as an indicator of medicalization. In other words, and as presented in Figure 1, if the mental health care use of the unemployed is higher than that of the employed, and if this can only partly be ascribed to their poorer mental health status, I understand it as an indication of the medicalization of unemployment. As a result, I explore the medicalization of unemployment in one specific domain: The use of medical care in the mental health field. I am aware of the fact that the medicalization of unemployment can also be examined in other societal areas, such as in national discourses on unemployment as a personal failure, a position deviating from the norm, or psychological deficit. Moreover, unemployment could also be medicalized in order to create the possibility of relying on disability benefits instead of unemployment benefits, as the former are more stable, less stigmatizing, and often more generous (Beatty & Fothergill, 2005).

Measuring and interpreting mental healthcare utilization beyond need, as an indicator of the medicalization of unemployment, also enables comparative research across societies, macroeconomic conditions, and institutional structures. Identifying in which contexts and under which conditions social phenomena occur more, or occur less, and exploring the relation with social policies that can shape opportunities or restrict the process of medicalization, may improve the understanding of the phenomenon (Olafsdottir, 2010). Because medicalization has mostly been explored in the USA, and the situation in the USA is exceptionally different from other advanced industrialized countries, the focus on this specific context may lead to medicalization literature being biased (Olafsdottir, 2007, 2011).

Noticeable differences for the USA compared with Europe are the lack of universal coverage of health care insurance, a high level of power of medical professionals over their jurisdiction, and the lawfulness of Direct-to-Consumers Advertising of medication. Therefore, European research and studies covering several countries have been highly encouraged in medicalization literature.

The strength of this dissertation is to apply multilevel modeling techniques to evaluate the hypothesis that medicalization – as a cultural transformation that varies across institutional settings – affects the health behavior of individuals, such as contacting medical professionals and taking medication. It is important to combine the macro level with individual health and health care outcomes, within and across countries, as the differences may not (solely) lie in aggregated outcomes (Olafsdottir & Beckfield, 2011), but also in the relations between employment status, mental health, and mental health care use. These individual relations are assessed at three higher levels: (1) societal, (2) macroeconomic, and (3) institutional. First, at the societal level, I shed light on the impact of the social norm of unemployment. Second, and framed in the context of the recent economic crisis, I question whether the mental health status and the professional care-seeking behavior of the unemployed vary across macroeconomic contexts and changes therein. Third, attention is paid to unemployment policies on the one hand, and to characteristics of the health care system on the other. This is done in order to evaluate the impact of the institutional context on the use of mental health care by the unemployed. Figure 2 gives a schematic overview of the full conceptual model, and at which level each of the five empirical studies are located. Below, the three macro levels are consecutively discussed in greater detail.

Figure 2: A schematic overview of the conceptual model and the five empirical studies per research level



2. Societal level: The social norm of unemployment

The line between acknowledging the agency of people in unemployment and blaming them or holding them responsible for their unemployment is fine and blurred (Murray, 1996). There is continuous interplay between structural and cultural or behavioral factors to evaluate the position of unemployment. This brings us to the debate between the structuralist and behaviorist approaches to unemployment. In the former, the unemployed are presented as powerless victims, while in the latter they are considered to be active agents in their own life. Over recent decades, there has been a shift from structural determinism toward the opposite. The unemployed are progressively considered to be responsible for their condition. Being unemployed is framed as a result of choice, based on weighing up having a job and a wage versus having free time and unemployment benefits (Wiggan, 2012). Unemployment, in this line of thinking, is a manifestation of personal failure and poor social behavior. This is facilitated by expansive benefit payments, which encourages passivity and dependency on the state. Intensification of conditionality and economic rationality in welfare states reinforces messages of personal responsibility, self-motivation, and the superiority of market rationality. This trend, where a behavioral explanation for a social/structural problem (unemployment, poverty, etc.) prevails, parallels a change in inequality. Social inequality is no longer based on

background or status, but on the unequal distribution of capabilities; especially in countries where there are substantial options and opportunities to develop qualities and capabilities.

The way in which people view unemployment – as either a personal or a structural problem – might have an impact on the way unemployment is perceived and experienced by the unemployed. Moreover, how problems and the causes of problems are defined, also determines who or what is considered to be responsible – society or the individual – and which treatments are imposed and used (Olafsdottir, 2010). In the current neo-liberal discourse, structural aspects of unemployment have become increasingly marginalized and unemployment has been transformed into the individual pathology of benefit dependency and a lack of motivation (Wiggan, 2012). As a result, the strength of the relation between unemployment and mental health and individual treatment – in the form of mental health care and medication use – may be affected by the dominant and shared ideas about unemployment and the perception of its causes. This shared way of looking at unemployment can be addressed as a social norm. In general, norms are social if they are shared by other people and partly sustained by their approval or disapproval (Elster, 1989). Social norms can prevail in a family, a peer group, an organization, or even a whole society (Fehr & Fischbacher, 2004). The social norm theory draws on the idea that people are concerned with their relative standing (Schwarz, 2012). How people evaluate and perceive their situation depends on how they conform to or deviate from the norms of the social reference group (Winkelmann, 2014).

Applied to the unemployed, the social norm theory argues that the negative psychological and social consequences of unemployment will become weaker as the deviation from the social norm becomes smaller (Clark et al., 2010; Clark, 2003). Evaluations of unemployment may depend on the reference group. Clark claims that the unemployment rate determines the degree of adherence to the norm of unemployment (Clark, 2003). To date, the social norm theory has mostly been tested in an indirect way, by using unemployment rates as a proxy for the descriptive social norm of unemployment (Stavrova, Schlosser, & Fetchenhauer, 2011). This perspective implicitly relies on the assumption that in regions or countries with a high unemployment rate, unemployment is mostly seen as a structural problem. Higher unemployment in an area slightly reduces the extent of the negative effect of unemployment on well-being (Clark & Oswald, 1994). Being unemployed in a context of high aggregate unemployment is less stigmatizing and less shameful, because the experience is shared. If the unemployment level is high, unemployment seems to be less related to personal capabilities,

and it is more randomly distributed. In that case, one might consider this to indicate the existence of a strong social norm of unemployment. By contrast, when unemployment levels are low, the unemployed are a minority and may perceive a feeling of social exclusion from the community, in which participation in the labor-market remains central. The prevailing idea tends to be that unemployment is more selective, and related to individual skills and capacities. This stimulates the idea of personal failure among those who have lost their job. Consequently, unemployment will be more individualized and will stimulate its perception as a personal problem that needs medical treatment, which may trigger the process of the medicalization of unemployment. The hypothesis derived from the social norm theory about the impact of the relatively indirect measurement of the social norm of unemployment can be formulated as follows:

- **Hypothesis 2.1** The *social norm hypothesis*: The negative relation between unemployment and mental health and the positive relation with health care use will be weaker in regions with a higher level of unemployment compared with regions having a lower unemployment rate.

In contrast to the social norm perspective, the labor-market approach argues that the unemployment rate is an important indicator of the economic climate of a country and region, which also has to be taken into account. When the unemployment rate is used as a proxy for the social norm, the social norm effect may be countered by the insecurity of not finding new work and the increased competition the unemployed may experience in a sparse job market (Oesch & Lipps, 2013).

Recently, researchers have highlighted the importance of a direct measurement of the social norm, such as societal tolerance toward the unemployed and their level of stigmatization. In a few studies, data for individual answers to items about the role of the government in taking responsibility for unemployment, and/or of the extent to which people agree with statements such as “unemployed people are lazy”, and “not finding a new job is because of personal incapacity”, are aggregated at the national or regional level (Lalive & Stutzer, 2004; Stavrova et al., 2011), and used as indicator of the social norm of unemployment or work. However, it can be argued that this subjective measurement is susceptible to socially desirable answers.

Moreover, the characteristics of unemployment itself may also determine whether unemployment is perceived by society more as a structural problem or instead as a personal one (Weiner, 1985). Being unemployed because of a workplace closure can be experienced in a different way than being unemployed because of other circumstances, such as being laid off due to personal reasons. This different societal perception and experience can lead to a different relation with mental health and mental health care use. Those unemployed because of a workplace closure – also termed displaced workers – are characterized by a structural cause for displacement (Fallick, 1996). This form of unemployment can be considered as exogenous to the individual. It can be perceived as a structural and social problem rather than an individual issue, given that the unemployed person will not be the only one in the same situation, and that they can relate to other colleagues who also lost their job. Unemployment may be perceived less as a personal failure and affect the unemployed less in terms of self-blame and self-esteem (Eliason & Storrie, 2009b; Morris & Cook, 1991; Winefield et al., 1992), which may have consequences for their mental health, and mental health care and medication use. These differences in the experience of unemployment enable empirical testing of the medicalization hypothesis. I hypothesize that:

- **Hypothesis 2.2** The negative relation between unemployment and mental health and the positive relatio with health care use will be weaker for the displaced unemployed than for the non-displaced unemployed.

Both hypotheses based on the social norm theory of unemployment – the traditional one using the unemployment rate (Hypothesis 2.1), and the alternative applying the social norm theory by distinguishing between the displaced and non-displaced unemployed (Hypothesis 2.2) – are empirically tested in Study 2.

3. Macroeconomic level: The impact of the economic context and changes therein

The effect of the economic crisis on mental health according to employment status and job conditions

The recent European recession had, and still has, a significant impact on employment conditions, unemployment levels, deprivation, and poverty rates. The magnitude of this impact varies across and within countries, depending on the structure of the economy, the institutions in place, and how policymakers have responded. The biggest tremors were felt in Southern Europe, where rates of youth unemployment have approached 60 percent, as well as in many regions of Bulgaria, Iceland, and Ireland. By contrast, in Germany, Austria, and Luxembourg, rates of unemployment have stagnated or even decreased since the start of the economic crisis (Eurofound, 2013). However, in Germany, this is among other things due to the increasing number of One-Euro-Jobs[3] (Hohmeyer, 2012).

Although the economic and political implications of the economic crisis have been studied in detail, the effects on health, especially mental health, have received little research attention to date (Reeves et al., 2012). The majority of the studies exploring the health effects of the economic crisis – or more generally, of changing macroeconomic conditions – are epidemiological studies that use aggregated data. Theory and the formulation of hypotheses are often lacking. Moreover, much of the work assessing the public health outcomes of the crisis has been limited to individual countries. Particular attention has been paid to countries affected to the greatest extent, such as Greece and Spain (Economou et al., 2013; Fernandez-Rivas & Gonzalez-Torres, 2013; Gene-Badia et al., 2012; Gili, Roca, Basu, McKee, & Stuckler, 2013; Madianos, Economou, Alexiou, & Stefanis, 2011; Stuckler, Basu, Suhrcke, Coutts, & McKee, 2009). However, we do not know whether these findings can be extrapolated to other parts of the European population, and comparative research is currently lacking.

[3] In 2005, there was a major reform of the German unemployment benefit system (Hohmeyer, 2012). It aimed at activating benefit recipients, by a workfare program, the so-called One-Euro-Job. Participants receive their means-tested benefit and a small compensation of usually one to 1.5 € per hour worked. The compensation is not considered a wage, so it is not taken from the unemployment benefit. People with working opportunities with additional cost compensation are not unemployed in federal statistic meanings. This is to embellish the unemployment statistic.

Some studies have confirmed negative influences of the crisis on health (Bartoll, Palencia, Malmusi, Suhrcke, & Borrell, 2014; Bernal, Gasparrini, Artundo, & McKee, 2013; Branas et al., 2015; Cordoba-Dona, San Sebastian, Escolar-Pujolar, Martinez-Faure, & Gustafsson, 2014; Fernandez-Rivas & Gonzalez-Torres, 2013; Gili, Roca, Basu, McKee, & Stuckler, 2013; Urbanos-Garrido & Lopez-Valcarcel, 2014; Zavras, Tsiantou, Pavi, Mylona, & Kyriopoulos, 2013). Others have found no evidence, and a few claim that health continued to improve during the first years of the crisis (Regidor, Barrio, Bravo, & de la Fuente, 2014), or even that recessions are favorable to health (Asgeirsdottir, 2014; Ruhm, 2000; Tapia, 2014). The latter finding is especially pertinent, as health promotion and compromising behaviors are assessed in the research. Possible explanations are that in recessionary periods, individuals have more time to increase physical activity, whereas they have less financial resources for smoking and drinking, especially when at the same time tobacco and alcohol prices have been increased (Asgeirsdottir, 2014; Filippidis et al., 2014; Gerdtham & Ruhm, 2006).

Despite some apparently contradictory findings, the indications of an increase in mental health problems, particularly depression and suicide, are consistent (Barr, Taylor-Robinson, Scott-Samuel, McKee, & Stuckler, 2012; Branas et al., 2015; De Vogli, Vieno, & Lenzi, 2014; Gili, Roca, Basu, McKee, & Stuckler, 2012; Goldman-Mellor, 2010; Katikireddi, Niedzwiedz, & Popham, 2012). Explanations that are given for the negative effects of economic turmoil on mental health can be classified into two groups, similar to the classification of studies in this subfield based on their research design: Risk factor studies and net effect studies (Astell-Burt & Feng, 2013). In risk factor studies, an attempt is made to identify the impact of unfavorable economic conditions – such as unemployment, underemployment, and poverty – on individuals' health. Accordingly, negative mental health effects of the economic crisis can be explained by an increase in these individual risk factors. It is the economic contraction that may directly affect individuals by putting them out of work, causing them to lose income, and removing work-based social networks.

In addition, the employed could be directly affected by the crisis due to increased job insecurity, involuntary part-time work, higher workload due to restructuring, and increased flexibilization. These are also risk factors for increased psychosocial distress. High unemployment rates might limit workers' bargaining power, thereby making it easier for employers to increase job insecurity or force workers to accept less desirable employment conditions (e.g., non-standard jobs such as part-time and temporary contract work) (Benach et

al., 2014). Reference can be made here to compositional effects, since these operate because of the varying distribution of individual characteristics or risk factors (Frohlich, Corin, & Potvin, 2001). Based on the assumption that unemployment and undesirable employment conditions are individual characteristics that have similar negative effects on health and health care use, wherever and whenever the unemployed and employed in nonstandard jobs live, it can be expected that the economic crisis will lead to an increase in mental health problems.

- **Hypothesis 3.1** An increase in unemployment and/or employment in nonstandard jobs, will partly contribute to an increase in the levels of depression in countries most severely hit by the crisis.

Net effect studies use aggregated data to obtain an insight into the sum of economic effects on population health (Astell-Burt & Feng, 2013). Indirect effects of the economic crisis are also included in these studies, through social contagion pathways (Goldman-Mellor, 2010). A period of economic turmoil may create a climate of economic uncertainty, mistrust, and pessimistic prospects about the future, which can also increase the levels of distress among individuals *not* directly affected by the crisis. Thus, alongside compositional effects, contextual effects might also occur. Contextual effects arise when the health experiences of individuals not only depend on their own characteristics but also on the characteristics of their habitat and commuting area (Frohlich et al., 2001). In addition, during recessionary periods, the level of tolerance will be lower, which may harden stigmatization and further deepen social exclusion and discrimination (Evans-Lacko, Knapp, McCrone, Thornicroft, & Mojtabai, 2013).

The number of risk factors and the number of people in vulnerable positions for mental health problems will increase during economic contraction, but also so will the relation between these risk factors and vulnerable positions for mental health. For example, with regard to unemployment, the relation with mental health problems can be strengthened during economic recession, since the likelihood of finding a new job is lower, and therefore competition between applicants will be higher. Yet another possibility is that the relation can be weakened because of the above-mentioned social norm of unemployment effect, or by a reduced health selection effect. When the economy changes direction and overall unemployment rates increase rapidly, the composition of the unemployed population will also change. In this situation, employers will have to let go healthy and productive employees who

would otherwise have kept their jobs. This will probably lead to a form of positive selection into unemployment (Heggebo & Espen, 2015). In addition, the relation between employment or specific employment conditions and depression may change. The employed possibly perceive greater job insecurity, and part-time work is more often a forced choice in an economy under pressure. This brings us to the next three hypotheses:

- **Hypothesis 3.2.a** There will be a stronger relation between unemployment and depression as the job supply decreases and competition between job-seekers increases. This will particularly be the case for those who are still looking for a job.
- **Hypothesis 3.2.b** The alternative hypothesis, based on the social norm theory, is that the relation between unemployment and depression might be attenuated (see above).
- **Hypothesis 3.3** During the crisis, the negative relation between depression and employment, and some employment conditions (type of contract, self-employment, part-time/full-time) might be changed. (The more specific hypotheses can be found in Study 3).

When talking about the indirect mechanisms related to the crisis, policy changes in response to it cannot be ignored. Several countries have reacted to the crisis with austerity policies, whether or not imposed by the International Monetary Fund (IMF) (Ayuso-Mateos, Barros, & Gusmao, 2013; De Vogli, 2013; McKee et al., 2012). Austerity policies are not restricted to cost containment in the health sector. In some countries, unemployment benefits have decreased or firmer time limits have been imposed. In addition, the criteria for entitlements to sickness and disability benefits have become stricter. People have to be "sicker" to be entitled to sickness benefit. This can be the cause of a new class of unemployed people: Those who were previously claiming sickness benefit, but are not ill enough to qualify according to the new standards, lose their benefits. If, at the same time, they are nevertheless too sick to find a job, they become unemployed instead of sickness benefit claimant (Blomqvist, Burstrom, & Backhans, 2014). Consequently, the composition of the group of unemployed has changed, and this may affect the relation between unemployment and mental health as well as between non-employment and mental health. I have formulated the following hypothesis concerning the non-employed due to sickness or disability:

- **Hypothesis 3.4** In countries hardest hit by the crisis, the positive relation between depression and non-employment due to sickness or disability will be stronger, given stricter entitlement criteria.

These hypotheses regarding composition effects (Hypothesis 3.1), net effects, or contextual effects (Hypotheses 3.2.a, 3.2.b, and 3.3), and indirect effects via policy changes (Hypothesis 3.4) of the economic crisis are estimated in Study 3.

The relation between macroeconomic conditions and mental health care use

Macroeconomic conditions not only affect mental health, but also people's mental health care use. Because economic contraction increases the incidence of mental health problems, this will be reflected in higher need and demand for health care, and subsequently, increased medical care use. Catalano and Dooley (1977) refer to these *indirect mechanisms* via mental health status as "provocation explanations". Cost containment policies in the health care sector, however, may hinder the actual translation into care use. The few relevant studies that exist indicate an increase in the demand for care, while at the same time public health care expenditure reduces due to austerity and privatization policies (Karanikolos, Rechel, Stuckler, & McKee, 2013; Kondilis et al., 2013; Miller, Page, Stevens, & Filipski, 2009). This combination of *increasing* demand and *decreasing* health care budgets has raised concerns about unmet need and delayed care (McKee et al., 2012; Stuckler & McKee, 2012). Some researchers have already observed reductions in the use of routine and preventive medical care, whereas there is an increase in emergency admissions (Gene-Badia et al., 2012; Kentikelenis et al., 2011; Lusardi, Schneider, & Tufano, 2010). Based on these theoretical indirect mechanisms, I have formulated three hypotheses:

- **Hypothesis 4.1** If the macroeconomic context is poor and/or there is economic contraction, mental health will become worse, which will result in correspondingly higher mental health care use.
- **Hypothesis 4.2.a & b** There are arguments to expect that this trend (Hypothesis 4.1) will be stronger both [**a**] among the unemployed (as they have fewer resources to anticipate and deal with stressful conditions) and [**b**] among the employed (because the macroeconomic conditions lead to the worsening of working conditions).

- **Hypothesis 4.2.c** Alternatively, the *unmet need hypothesis*, leads to the expectation that there will be higher unmet need for mental health care, in particular among the unemployed.

When there is an impact of the economic crisis on professional care use, above and beyond the impact on actual mental health status, *direct mechanisms* are at work. In this regard, Dooley and Catalano talk about the "uncovering mechanism" (Catalano et al., 1985; Dooley & Catalano, 1984). They suggest that during recession – characterized by overstaffed labor-markets and an oversupply of potential employees – those who are employed may perceive greater job insecurity and will try to prevent illness that might result in job loss. Therefore, economic contraction possibly leads to the anticipation of distress or depression-related complaints, followed by the (asymptomatic) prophylactic or preventive use of mental health facilities (Catalano et al., 1985; Dooley & Catalano, 1984). However, the unemployed might also be expected to use more mental health care than anticipated based on their mental health status. Despite the clearer structural cause of problems such as unemployment, underemployment, and poverty, the Mental Health Commission nevertheless warned against medicalization of these financial, economic, and social problems (Lynch, 2011), as an individual approach is often easier than a structural one and there seems to be a neoliberal trend toward more self-responsibilization (Bambra & Eikemo, 2009). Moreover, irrespective of health status, a shift has occurred from private and specialized care to more public and primary care, which has also coincided with the increased use of generic medication (Leopold et al., 2014; Vogler, Zimmermann, Leopold, & de Joncheere, 2011). These direct mechanisms lead me to some hypotheses about mental health care use and its relation with employment status:

- **Hypothesis 4.3** If the macroeconomic context is poor and/or there is economic contraction, mental health care use will increase, regardless of whether there is an increase in mental health problems.
- **Hypothesis 4.4.a & b** It is hypothesized that this outcome can go in two ways. Specifically, the effect suggested in Hypothesis 4.3, **[a]** will be stronger for the unemployed (*the medicalization hypothesis*), but also the alternative can be expected, **[b]** that it will occur more among the employed, (*the preventive care use hypothesis*).
- **Hypothesis 4.4.c** In addition, the *shift hypothesis* assumes that during economic contraction, the likelihood of contacting a GP for mental health problems will

increase, whereas that for psychiatrist consultations will decrease, irrespective of the actual mental health status of the individuals.

Both groups of hypotheses, those relying on indirect mechanisms (Hypotheses 4.1, 4.2.a, 4.2.b & 4.2.c) and those concerning direct mechanisms (Hypotheses 4.3, 4.3.a, 4.3.b & 4.3.c) are tested in Study 4.

In sum, when studying the impact of macroeconomic changes due to the crisis on the relation between employment status, mental health, and health care use, it is fruitful to combine compositional and contextual effects as well as direct and indirect mechanisms, because they can be mutually reinforcing and jointly influence health outcomes (Frohlich et al., 2001). In addition, a combination of risk effect and net effect studies should be created, by integrating the individual level and macro level into one study.

4. Institutional level

In this section, my aim is to contribute to existing literature by integrating welfare state and policy research in the domain of medical sociology and the sociology of health and illness. Although this integration has been highly recommended, to date it has rarely been done (Olafsdottir & Beckfield, 2011). Welfare state research very often remains at the macro level, searching for the best fitting classifications of countries or examining how welfare states and policies are associated with aggregated health outcomes or income inequality measurements. However, welfare policies influence the effect of negative life events and situations, such as job loss and unemployment, on individual lives. Public policy shapes the life and health of individuals, and even more so if they depend on state support, as is the case for the unemployed (Wulfgramm, 2014). Therefore, it is important to combine the macro level with individual health and health care outcomes, within and across countries, as the differences may not (only) lie in aggregated outcomes (Olafsdottir & Beckfield, 2011) – such as prevalence rates of mental health care and medication use – but also in the relation between employment status and mental health care use. As I am interested in the institutional foundations of medicalization – more specifically, which policies create the greatest likelihood of medicalizing the unemployed – I look at the role of welfare policies. Welfare policies can enable or constrain the process of medicalization, and as claimed by Olafsdottir

(2007), every example of comparative research on medicalization has to take the state and its policies seriously. This can be accomplished in several ways, and there is still inconsistency about which is the best method.

In literature concerning the welfare state, differences in health outcomes are addressed by three approaches: The regime approach, the institutional approach, and the expenditure approach (Bergqvist, Yngwe, & Lundberg, 2013; Dahl & van der Wel, 2013). The first, the *regime approach*, currently dominates the field. A classification of countries in clusters is made, based on the idea that they have some similar ideologies, policies, or political traditions. The general assumption is that by specifying ideal types it is possible to assess the underlying commonalities and principles of social structures and welfare institutions. The pioneering work of Esping-Andersen *Three worlds of Capitalism* (1990) provides the most commonly-used welfare state typology.

Esping-Andersen (1990, 2000) argues that the dominant correlational approach has two limitations. First, most studies solely use data on expenditure as a surrogate for welfare states. However, expenditure can give a misleading picture of welfare state differences and social spending levels may camouflage more than they reveal. For example, expenditure might be very generous, but only for a very specific group of the population. Esping-Andersen (2000) prioritizes the strength of social rights, equality, universalism, and the institutional division between market and politics. Second, the other limitation he cites is that the standard correlational approach relies on a questionable assumption of linearity: That countries' welfare states can be compared in terms of "more or less" (spending, redistribution). Therefore, in terms of his three dimensions – social stratification, public-private mix, and strength of social rights – he finds clusters of countries and regime types. He has made comparative (policy) researchers aware of the importance expanding research concerning aggregated welfare state expenditure, by paying attention to the role of welfare on commodity relations and the outcomes of welfare provision.

Esping-Andersen's work (1990) has nevertheless been criticized because it relies too much on income transfers and ignores the effective provision of welfare services, such as health care and education (Bambra, 2005a, 2005b, 2006). Over the years, several adaptations to the typology have been developed, including contributions from Ferrera (2000), Korpi, and Palme (1998), Huber and Stephens (2001), and several others. As all these typologies consist of ideal

types they will never *completely* fit the complex reality. Results based on them, therefore, will be relatively crude and inconsistent (Bergqvist et al., 2013). Less attention is paid to specific policies and social services, and they do not say enough about the real underlying mechanisms. Mackenbach (2012b), for example, notes that Esping-Andersen's typology is not suitable for distinguishing countries with different types of health care systems. Beneficence or universalism in one part of the welfare state – for example with regard to unemployment benefits – does not imply the universalism of health care provision. For the current topic of the mental health care use of the unemployed, this is very problematic, as both policy domains are involved. Berqvist (2013) concludes that the regime approach is suitable when it is used in studies with welfare states as the outcome, but that it is too broad and leaves the "black box closed" when health outcomes or health inequalities are the dependent variables.

Bambra and Eikemo (2009) explored cross-national differences in the relation between unemployment and health, using the regime approach. The Ferrera (2000) typology was used to explain variation in the strength of the relation. The researchers observed that the negative relation between unemployment and health is consistent across Europe, but varies by welfare state regime. Contrary to their expectation that the negative relation would be the weakest in Scandinavian countries, they found that it was strongest in Anglo-Saxon, Bismarckian, and Scandinavian countries, whilst weaker in Southern Europe.

The second method is the *institutional approach*, which pays attention to the design of welfare institutions and specific social policies and programs (Bergqvist et al., 2013; Dahl & van der Wel, 2013). It explores in more detail how welfare institutions are designed, and how this translates into health outcomes. Institutional characteristics are recognized alongside expenditure levels. These characteristics may include varied elements, such as replacement rate, waiting time, duration, coverage, and qualifying criteria. However, the institutional approach has a disadvantage, as the databases apply a number of assumptions regarding the age and family situation of a standard worker, for example, in order to construct relevant program features. This could be problematic if there are important groups that fall outside the living situations captured by these typical cases (Korpi 2010). Despite this limitation, as health outcomes are the dependent variable, more consistent results are found than when relying on the regime approach (Bergqvist et al., 2013). Bergqvist (2013) found in his meta-analysis that generous policies and benefits are associated positively with health for all of the population, not only those who are directly affected or targeted.

Further, with an institutional approach, the country differences in the relation between unemployment and mental health have been already addressed. Nordermark and colleagues (2006) compared the impact of unemployment benefit regime by contrasting the mental health of the unemployed in Britain, Ireland, and Sweden. They observed that the type of benefit received is also an important determinant of mental distress, with income replacement benefits being more beneficial than flat-rate benefits.

The last method is the *expenditure approach*, which focuses on welfare state efforts and generosity by concentrating on public spending on social protection and services (Bergqvist et al., 2013). This approach can be criticized for its inability to differentiate between effort and need. A high level of spending on unemployment benefits and programs can reflect greater ambition in terms of coverage or replacement rate, but also a high unemployment rate. The same applies to health care expenditure. This might be high in order to provide accessible and high-quality services, but also simply because the level of need for health services is high. By distinguishing between gross and net expenses, some of the earlier criticisms are addressed (Dahl & van der Wel, 2013). The approach has also been criticized for being misguided due to its linear scoring of the variables, which violates the notion that welfare states consist of qualitative relations between social actors (Dahl & van der Wel, 2013). To the best of my knowledge, no research exists that specifically deals with the relation between unemployment and (mental) health, by using an expenditure approach to explain country differences. There are only a few studies regarding the life satisfaction of the unemployed (Di Tella, MacCulloch, & Oswald, 2003; Eichhorn, 2014; Gallie & Russell, 1998). The recent work of Wulfgramm (2014) confirms that unemployment consistently has a strong negative life satisfaction effect, but this effect was found to be strongest in countries where Passive Labor-market Policy (PLMP) expenditures were meagre. To date, none of the three approaches has been applied to explore cross-national variation in the relation between unemployment and mental health care use.

In addition to literature concerning welfare states, there also is the more specific subfield of health care systems. One of the best known health care system typologies is that of the OECD, based on the indicators of access, financing, and private-public mix (Marmor & Wendt, 2012). Three systems are distinguished: The Social Health Insurance or Bismarckian system (e.g. Germany), the National Health or Beveridge system (e.g. the UK), and the Private Health Insurance type (e.g. the former system in the USA). In the last of these, the free

market plays a dominant role. In the Social Health Insurance system, the state provides and maintains a system of contracts among patients, providers, and insurers. In this system, medical doctors provide the services, and the size of the private health sector is large. In the Beveridge system, the state ensures universal health care provision. The health care is financed by the government through tax payments. Many, but not all, hospitals are owned by the government; some doctors are government employees, but there are also private doctors who collect their fees from the government the health care system, and medical professionals work directly for the state (Olafsdottir, 2010).

There is still an ongoing debate about which indicators need to be included in a health care system typology. The most commonly used are financing, provision, and coverage, but institutional characteristics are also important, such as waiting times, the presence of a gatekeeping system, fees for services or a salary system for physicians, integrated care, a maximum charge or not, and a third-party system or not (Beckfield, Olafsdottir, & Sosnaud, 2013). Existing typologies are often criticized, because they are not patient-oriented enough or because of their lack of attention to preventive and community-integrated care, which have become increasingly important following the trend for deinstitutionalization. Concerns have been raised about the use of indicators that implicitly refer to "failed medicine". Therefore, it is considered important to take the level of need into account, or as an alternative, the age structure or health expenditure related to the distribution of social class, such as expenditure for those aged over 65. In addition, these health care system typologies have in common with the regime typology that they are often too broad to capture the complex reality or to offer a deeper insight into the underlying mechanisms (Beckfield et al., 2013).

The preferred approach strongly depends on the research objective. Berqvist (2013) concludes that the institutional and expenditure approach are very useful when focusing on more specific welfare and health outcomes. These approaches enable us to study specific policies, but can also easily be used to study the total effort, by combining different rights and spending. Whereas the regime approach relies on country clusters and average differences, the institutional and expenditure perspective provide a variable approach. The latter offers the opportunity to allow for the fact that countries differ in their policies in different areas of interest. Beckfield (2015) has claimed that welfare states can be seen as institutional arrangements; as a set of "rules of the game". One of the mechanisms of the welfare state is imbrication, which means the overlap between several policy domains and social services.

As I am studying the cross-national variation in the mental health care use of the unemployed, it is important to address two different policy areas: Unemployment and health care. Unemployment policies distribute resources that are themselves important for health outcomes and within the health care system (Beckfield et al., 2015). These policies also produce a sense of security, an idea of who is responsible for dealing with unemployment (the government or the unemployed themselves), and the extent to which this is the case. This may affect the perception and experience of unemployment, and the stigma attached to it. These experiences and perceptions will in turn influence the mental health status of the unemployed and their help-seeking behavior.

To examine cross- national variation in the medicalization of unemployment, my preference is to use a combination of the institutional and expenditure approach. Therefore, I do not carry out a clustering analysis and/or make a categorization of countries by a health care system typology. As every country has a unique combination of policies concerning unemployment and the provision of health care services, the impact of the level of unemployment and health care decommodification are addressed.

Unemployment decommodification is the extent to which individuals and families can maintain a normal and socially-acceptable standard of living without being reliant on wages from the labor-market (Esping-Andersen, 1990). The decommodification index with regard to unemployment is a combination of five indicators: The generosity of benefits paid to the unemployed (replacement rate), the qualifying period as a condition, the duration of benefit payments, the waiting period before entitlement is available, and the percentage of the working-age population covered by the program. The higher the benefits, the duration of the benefits, and the coverage, and the shorter the qualifying period and waiting time, the higher the degree of decommodification (and vice versa). For the actual construction of the index, I rely on the revised version of Scruggs (Scruggs, 2007; Scruggs & Allan, 2006), in order to cater for a number of methodological issues related to Esping-Andersen's calculations (see Study 5 for more details) (Bambra, 2006; Jensen, 2008; Powell & Barrientos, 2011).

The Scandinavian countries are found to be generally the most generous for all these items, resulting in a high decommodification of unemployment (Bambra & Eikemo, 2009). There is strong protection for the unemployed by a highly interventionist state, which values principles such as universalism and social equality. One can expect that being unemployed in countries

with a high level of decommodification will be less stressful and therefore related to lower negative feelings of self-blame and personal failure, in particular regarding the financial aspect, but also concerning stigmatization. By contrast, the majority of Anglo-Saxon and Eastern European countries are known to have a relatively low level of decommodification (Bambra & Eikemo, 2009). This means that there is a less-generous replacement rate and that the entitlement conditions are stricter. Moreover, unemployment benefits are usually means tested. As a result, I expect that in countries with low levels of decommodification, the unemployed will be more stigmatized and considered individually responsible for their situation (Bambra, 2005a; Bambra & Beckfield, 2012; Bambra & Eikemo, 2009).

- **Hypothesis 5.1** In countries with a low level of unemployment generosity, unemployment will be more strongly related to mental health care use. This will also be true after controlling for mental health problems.

Institutional conditions and welfare policies might not only have an impact on how unemployment is experienced and how it affects mental health status and the demand for mental health care and medication, but also on the availability of the resources needed to make the medicalization of unemployment possible. In countries characterized by low unemployment benefits or strict criteria for entitlement, the unemployed are likely to perceive greater financial problems, due to the limited replacement income. If in these countries the provision and accessibility of health care is low, highly privatized, and related to work status, the unemployed will be a risk group for unmet need regarding mental health care, instead of potentially medicalizing their condition. Therefore, in addition to the degree of decommodification of unemployment, the characteristics of the health care system need to be taken into account. The welfare state may affect medicalization through what it provides and covers, but equally importantly, through what it does not cover, provide, or make easily accessible to everyone. The welfare state can thus act as an enabler or as a constrainer for the medicalization of unemployment (Conrad, 2007; Olafsdottir, 2007).

Although health care is one of the key dimensions of all modern welfare states, it has been relatively scarcely mentioned in major welfare-state theories. It is important to focus not only on the work-welfare nexus, as was done by Esping-Andersen, but to also pay some attention to social services and the (health) care-welfare nexus (Bambra, 2005a; Ferragina & Seeleib-Kaiser, 2011). As a response to this limitation of Esping-Andersen's work, Bambra (2005a,

2005b) extended the concept of decommodification to cover health care provision. With this concept, she refers to the extent to which an individual's access to health care is dependent on their market position and the extent to which a country's provision of health is independent from the market.

Bambra's decommodification of health care index is based on three parameters: Private health expenditure, private hospital beds, and the coverage of the population by the public health care system (Bambra, 2005a, 2005b). These parameters assess the financing, provision, and coverage of the private sector and are therefore useful indicators of the varied role of the market in a health care system: The larger the size of the private health sector, in terms of expenditure and consumption, the larger the role of the market and therefore the lower the degree of health decommodification (Bambra, 2005a).

Although Bambra's work (2005a, 2005b) is innovative, some limitations are associated with her index. The decommodification index of health care is constructed in the same way as Esping-Andersen's labor-market indexes. As a result, it is subject to the same methodological drawbacks (Castles & Mitchell, 1993; Kangas, 1994; Ragin, 1994; Shalev, 1996; Pitruzello, 1999). To take some of these problems into account and to make the indexes more comparable, I have reconstructed Bambra's index (2005a) along the z-score method of Scruggs (Scruggs, 2007; Scruggs & Allan, 2006) and by using more-recent data. The index is also highly focused on the private-public mix, paying less attention to the accessibility and provision of services, which are also important parameters of health care generosity. Bambra's index (2005a) was constructed based solely on the initial OECD countries, as in the research of Esping-Andersen (Yu, 2012). However, for the current research (Study 5), several Central and Eastern countries are also included. For these countries, the indicator used could give an incorrect reflection of the real situation. Based on Bambra's (2005a) decommodification index, they score relatively high compared with other countries such as the Netherlands, Belgium, and Germany. This is because they have lower private provision. Nevertheless, their health care systems are less developed, especially with regard to mental health care services. In addition, accessibility for the more vulnerable groups – such as the unemployed – is often lower, because Household Out-of-pocket (OOP) Payments[4] are

[4] Household OOP expenditure on health comprises cost-sharing, self-medication, and other expenditure paid directly by private households, irrespective of whether the contact with the health care system is from a referral or on the patient's own initiative. It is a part of private health expenditure [https://stats.oecd.org/glossary].

relatively high. Research shows that the proportion of private health insurance spending is not necessary related to out-of-pocket spending as proportion of the total expenditure on health (Quesnel-Vallée, Renahy, Tania Jenkins, & Cerigo, 2012). For example in Estonia, Poland, and Hungary, expenditure on private health insurance is almost non-existent, but OOP payments are relatively high (Quesnel-Vallée et al., 2012). Household 'Out-of-pocket payments as percentage of the total expenditure on health is a good indicator for assessing the accessibility of health services and detecting financial barriers. Therefore, this indicator is added to Bambra's decommodification of health care index (Bambra, 2005a).

At first glance, it could be expected that when the role of the market in health care financing and provision is high, there will be a strong medicalization process, especially according to the Marxist approach to medicalization theory, which accentuates the market as key player. The USA is presented as a perfect example (Olafsdottir, 2007, 2010). However, in the current study, I do not focus on the main effect of health care decommodification on medicalization in general. I want to explore its moderation effect on the relation between unemployment and mental health care use (the medicalization of unemployment), and in that regard, the logic appears to be different. Bambra accentuated the private-public mixture in her health care decommodification measurement (Bambra, 2005a, 2005b). A large proportion of private health insurance in OECD countries is provided through the workplace (Colombo & Tapay, 2004). As a result, in countries with high expenditure on private health insurance and services, the employed are often favored compared with the unemployed, for whom it is often more difficult to use private services and to obtain private insurance (Colombo & Tapay, 2004). Moreover, more private (insurance) expenditure and private provision of services (relative to public expenditure and provision) seems to increase social inequality in health care access, especially by harming the most vulnerable (Bambra, Garthwaite, & Hunter, 2014). Accordingly, I expect that in countries with a high level of health care decommodification – such as the UK, which has a national health care system – the structural thresholds for contacting a medical professional or obtaining medication will be lower, and the access to and availability of medical resources will be independent of (or at most minimally dependent on) an individual's position in the labor-market and/or their economic capital. As a result, the unemployed in those countries will be less constrained in medicalizing their unemployment compared with the unemployed in countries with a low level of health care generosity.

- **Hypothesis 5.2** In countries with a high level of health care generosity, the unemployed in particular will be less constrained in their medical care use.

In sum, taking both dimensions of decommodification into account creates a combination of "cash benefits" and "services", which is very important, as a welfare state is not restricted to cash benefits. In addition, the provision of services is important and needs to be taken into account (Bambra, 2005a). The decommodification indexes can be used as variables, and consist of institutional characteristics as well as expenditure measurements. Further, by controlling for mental health status and employment status at the individual level, the disadvantage of the expenditure approach can be partly overcome. Based on this theoretical framework, I hypothesize that a combination of low unemployment generosity and high health care generosity will trigger the medicalization of unemployment. In this situation, the unemployed will possibly perceive greater stigmatization and individual responsibility, which are incentives for medicalization, and this medicalization of unemployment will not be, or will be minimally, constrained by the characteristics of the health care system.

- **Hypothesis 5.3** A combination of low levels of decommodification of unemployment and high levels of decommodification of health care will trigger the medicalization of unemployment.

These three hypotheses (Hypotheses 5.1, 5.2, and 5.3) are tested in the last empirical study (Study 5).

CHAPTER 5

Research aims and situating empirical papers

1. Research questions and empirical studies

In this chapter, I give a brief overview of the empirical studies included in this work and the questions they seek to answer. The aim of the **first study** is to unravel the relations between employment status, job insecurity, professional care seeking for mental health problems, and antidepressant use, at the individual level. I question *whether unemployment and job insecurity are related to the extent of mental health care and antidepressant use. And whether differences in health care and antidepressant use can be explained by differences in the need for care. In addition, whether these associations differ by gender.* Accordingly, this study is a general test of the fundaments of my theoretical framework, based on an integration of the biomedical need model and the medicalization perspective.

The second, fourth, and last studies start from the same basic theoretical framework, but I try to develop it in greater detail, to focus respectively on the impact of the social norm of unemployment, the macroeconomic context and changes to it, and the unemployment and healthcare policies.

In the **second study**, more insight is obtained into the impact of the social norm of unemployment on the relations between employment status, mental health, and mental health care use. Regional unemployment levels are used as a proxy for the social norm of unemployment, and an alternative approach to the social norm theory is applied by distinguishing between the displaced and the non-displaced unemployed.

The main objective in the **third study** is to assess the impact of the economic crisis on depression in Europe by taking into account countries' pre-crisis economic conditions and the strength of the crisis. I investigate the extent to which the expected positive relation between a high increase in the national unemployment rate (from 2005 to 2011) – as an indicator of the strength of the crisis – and depression, can be ascribed to changes in the composition of the working-age population. In addition, I examine whether the economic crisis only had an effect on the mental health of individuals who actually lost their jobs, or also on those who were

already non-employed or unemployed before the crisis, and those who remained employed during the crisis.

In the **fourth study,** I continue to examine the impact of the economic crisis, but this time the focus is on mental health care use. I investigate whether the macroeconomic context and changes to it are related to mental health care use via their impact on mental health, or more directly, irrespective of mental health.

With the **fifth study**, the last one included here, I want to gain more insight into the institutional foundations of the medicalization of unemployment. I start by investigating whether the relation between unemployment and mental health care and antidepressant use, controlling for mental health status, varies across European welfare states. Second, I explore whether these differences across countries are patterned by a combination of unemployment policies as well as health care system characteristics – including disability benefits – which bridge the policy domains of welfare and health care. Third, I analyze how the level of generosity in the two policy domains shapes the relation between unemployment and mental health care use. Analyzing these relations using data before and after the start of the recent economic recession in Europe, which sparked austerity policies in many countries, allows me to shed light on the role of austerity policies in connecting unemployment and mental health.

Before I turn to the data and methodology for the five empirical studies, some important topics are addressed, which are relevant in almost every study: Causality versus selection, going beyond the dichotomy of unemployed-employed, and gender differences.

2. Tackling the differences between selection and causation:

When studying the relation between unemployment, mental health, and health care use, uncertainty remains concerning its direction (Eliason & Storrie, 2009). Both selection and causation effects of unemployment are possible. They do not need to be mutually exclusive, and evidence is found for both in relevant literature (Paul, 2006; Paul & Moser, 2009). In my empirical chapters, I am mainly interested in causation processes. Implicitly, I start from a temporal ordering, whereby unemployment is assumed to affect mental health care use, with or without mediation via mental health status. Selection is likely to be a concern if unhealthy individuals – especially in terms of mental health – or individuals who use medical care, are more likely to be unemployed or to remain unemployed.

Throughout my empirical research, I have tried to overcome the potential problem of reversed causality or endogenous unemployment (also termed selection bias) in several ways. First, in each of the five studies, I have taken the most important confounding factors into account. Confounding factors are variables that are related to the independent variable – employment status – as well as to mental health and/or mental health care use. Age, marital status, degree of urbanization,[5] and education level are therefore taken into account in each study. In Study 2 and Study 3, I also had the opportunity to control for immigration status and, respectively, household wealth and income.

Second, in each study I have differentiated between those who were inactive due to illness or disability, and the unemployed. In this way, I can partially take selection bias into account. However, even if job loss is not caused by health problems, selection bias can occur because unemployment may have a detrimental impact on health (Paul & Moser, 2009), and subsequently, the unhealthy unemployed are less likely to find a new job compared with the unemployed who are more healthy (Stewart, 2001).

Third, in Study 1, Study 4, and Study 5, I have tried to control for potential between-country differences in the selection bias related to between-country variation in the proportions of the unemployed. This was achieved by estimating the models taking the per country proportion of the unemployed into account. In countries with a high unemployment level, respondents have a higher likelihood of being unemployed. Over the last two decades, research has also observed persistent and widening health inequalities in Western Europe, despite advances in material well-being and welfare policies (Mackenbach, 2012; Vagero, 1991). Some researchers have claimed that in countries with generous welfare policies, personal characteristics (Mackenbach, 2010) and selection through social mobility (Vagero, 1991; West, 1991) increase in importance (Mackenbach, 2012). The social selection theory argues that in modern societies, people are socially mobile and are sorted into social classes on the basis of health (direct health selection) or health determinants (indirect health selection) (West, 1991). Therefore, by introducing interaction effects between the individual employment status and the national proportion of the unemployed, possible selection effects

[5] This can also be considered as a proxy for supply (Bracke, Colman, Symoens, & Van Praag, 2010), because the availability of medical professionals may vary from a large city to a more rural area (Saxena et al., 2007). In addition, mental health care attitudes may differ by urbanization, with a greater reluctance to seek professional help in rural areas (Hoyt, Conger, Valde, & Weihs, 1997).

can be estimated. It can be expected that in countries with a low unemployment level, unemployment is less randomly distributed and as a result will be more frequently considered a personal characteristic or a direct or indirect consequence of health selection.

Fourth, in Study 2, I have used a displaced worker approach (Schroder, 2013). The term displaced workers refers to the group of unemployed who lost their job due to a business or plant closure. It is a form of exogenous unemployment, as the reason for job loss is clearly structural and not personal. In the case of exogenous unemployment, variation in unemployment is not driven by individual health or capabilities, as we assume that the health status of an individual worker will not influence the closure of a firm (Schroder, 2013; Strully, 2009). As a result, the possibility of selection bias is likely to be non-existent (Schroder, 2010, 2013; Strully, 2009). Therefore, observing a negative relation between the exogenous unemployed and mental health would be strong evidence for the causation hypothesis.

Another option in order to take selection bias into account is working with panel data, but only if the interviews follow on from each other quickly enough, and if changes to mental health status and professional care use can be ascribed to changes in employment status. Unfortunately, the survey data (see below) I have used does not comprise panel data, with the exception of the SHARE. However, even the longitudinal panel design of that survey cannot solve this problem, as the time span between the waves is too long (3 to 4 years). Other reasons, such as the number of cases and the period of the survey (2010 to 2012, in the midst of the economic crisis in Europe) motivated the choice for wave 4 of the SHARE for Study 2.

3. Going beyond the unemployed-employed dichotomy

Although I recognize the importance of the concepts underemployment and precarious work, in practice it is not always easy or possible to take into account a continuum instead of the dichotomy of employed versus unemployed. Throughout the empirical chapters of my dissertation, I have tried to address the differences within the inactive and active as far as possible. I have paid attention to job insecurity (Study 1), part-time versus fulltime work and the type of contract among the employed, and whether actively seeking a job or not (Study 3) and displaced versus non-displaced among the unemployed (Study 2). Nevertheless, not having a job at all is, of course, still the ultimate form of job uncertainty. For most people, having any job is better for life satisfaction than having no job at all, even if the job is below

the status of previous employment (Grun, Hauser, & Rhein, 2010). Despite the importance of recognizing underemployment and precarious work, the dichotomy between the employed and the unemployed is still relevant in empirical research.

4. Highlighting gender differences

The main topics of this dissertation – employment status, mental health, mental health care, psychotropic drug use, and the relations between them – are not gender-neutral issues. Women are more likely to report mental health problems (Van de Velde et al., 2010) and to contact medical professionals (Buffel, Van de Velde, & Bracke, 2014). The gender difference in health service utilization varies depending on the type of professional care provider, with the largest differences found among outpatient and general mental health service use, and smaller variations for more specialist services (Fleury, Grenier, Bamvita, Perreault, & Caron, 2012; Rhodes, Goering, To, & Williams, 2002). Therefore, in the studies about mental health care use (1, 2, 4, and 5) I have made a distinction between primary (or general) and specialist care, respectively measured by GP and psychiatrist consultations.

Gender differences in mental health care use have been associated with gender-specific patterns in the pathology of mental disorders. Women suffer more from anxiety and depressive disorders, and men suffer more from impulsive and addictive problems (Van de Velde, Huijts, Bracke, & Bambra, 2013; Vesga-Lopez et al., 2008). The latter disorders are associated with a lower demand for care, which might result in lower use of mental health care by men. In Study 2, the SHARE data allows me to take the gender-specific expression of mental health problems into account, by including depressive symptoms as well as heavy episodic drinking.

Gender differences in mental health care utilization can often be only partially ascribed to differences in the need for care (Koopmans & Lamers, 2007; Rhodes et al., 2002). Previous research has therefore sought additional explanations, such as attitudinal differences and psychosocial factors, as well as associations with a number of socioeconomic and family-related determinants of use (Buffel, Van de Velde, & Bracke, 2014; Rhodes et al., 2002).

In addition, there is evidence that employment status and conditions are differently related to mental health depending on gender (Artazcoz, Benach, Borrell, & Cortes, 2004; Goldman-Mellor, 2010). Some researchers have found that unemployment may have a stronger negative

effect for men than for women (Artazcoz, Benach, Borrell, & Cortes, 2004; Goldman-Mellor, 2010). Despite the ongoing shift from a male breadwinner model toward a dual breadwinner model – accompanied by an increasing role for women in the labor-market – the stigmatization of unemployed men might still be stronger than that of unemployed women (Forret, Sullivan, & Mainiero, 2010; Kulik, 2000). In Western societies, masculine identity is intricately linked to having a job and is severely threatened by unemployment (Syzdek & Addis, 2010). Women may be more likely to rely on alternative roles that may act as substitutes for employment. The financial costs of job loss may also be more pronounced for men than women, given the bias in male versus female earnings (Wang et al., 2010).

Research on the economic crisis, examining the effect of unemployment on mental health, has shown that men are more susceptible to risks of depression and suicide during times of economic adversity (Artazcoz et al., 2004; Barr, Taylor-Robinson, Scott-Samuel, McKee, & Stuckler, 2012; Dunlop & Mletzko, 2011; Wahlbeck & McDaid, 2012) and that this effect is much less pronounced for women (Uutela, 2010). By contrast, there are researchers who claim that women are more vulnerable to economic crisis (Karamessini & Rubery, 2013; Rubery & Rafferty, 2013). The recent crisis has had a significant effect on the service industry, in which the greatest share of female employment is concentrated (Karamessini & Rubery, 2013; Rubery & Rafferty, 2013). In addition to women losing their jobs in these sectors, those who stay employed are also affected. A possible explanation can be found in the gendered nature of rationalization. When the typical male sectors shrink, there are fewer jobs linked to lower production, whereas in the typically female sectors (the public sector: education and (health) care), this logic does not work. Fewer jobs in the public sector means the same amount of work being done by a smaller number of people, and in some cases (e.g. health care) those who remain will have to do even more. This may lead to increased stress due to the higher workload. Some research additionally suggests that women are more likely to behave as employment buffers, called in when demand expands, but pushed out again when it contracts. The concentration of women in these precarious jobs would then reflect their perceived position as less committed or less advantaged workers due to their role in the family system (Karamessini & Rubery, 2013; Rubery & Rafferty, 2013). This view, however, has been challenged by recent research. Contemporary employment buffers are migrant workers and young men and women on temporary contracts (Bettio, 2012). In fact, a number of studies show that there has been a leveling out of the gender gaps in employment, unemployment, wages, and poverty over the course of the crisis (Bettio, 2012). This is due to

lower rates of employment, higher rates of unemployment, and reduced earnings for both men and women. Likewise, the proportion of men in temporary employment as well as involuntary part-time employment has increased to a greater extent than that of women (Eurofound, 2013).

In sum, there are enough reasons to take gender into account as an important factor when studying the mental health care use of the unemployed. Therefore, in each study with the exception of the last one (Study 5) – due to methodological issues regarding the sample size in the country specific analyses – the analyses are gender-differentiated.

CHAPTER 6

Methodology

1. Data and response rates

Taking medical care use for mental health problems as the outcome variable, while simultaneously controlling for mental health status, made choosing suitable survey data a difficult mission. Moreover, the inclusion of these variables was necessary, but insufficient for the research objectives. A large sample size was also preferable, as I needed a sufficiently large group of individuals who had used mental health care, in order to compare the unemployed with the employed while paying attention to differences within both groups. In addition, as I am interested in cross-national comparative research across macroeconomic contexts and institutions, as well as periods, for some of the studies it was necessary for the data to include several periods (studies 3, 4, and 5), countries (studies 3, 4, and 5), and/or regions (Study 2).

Table 1: An overview of the datasets, sample size, and period used for each study

Study		**1**	**2**	**3**	**4**	**5**
sample	**period**					
Eurobarometer 58.2	2002					
Eurobarometer 64.4	2005–2006					
Eurobarometer 73.2	2010					
Share Round 4	2010					
ESS Round 3 & 6	2006 & 2012					
Age range		20-65	50-65	20-65	20-65	20-65
N men		8 628	11 789	24 343	22 978	16 324
N women		10 168	15 118	27 336	28 014	19 982

Depending on the research question for each study, I opted for data from a specific round or rounds of particular surveys. In Table 1, an overview is provided of the survey data and round (or wave) used in each empirical study. For Study 1, data from the Eurobarometer 73.2 (2010) was used; for Study 2, wave 4 (2010-2012) of the SHARE; for Study 3, rounds 3 (2006) and 6 (2012) of the ESS; for Study 4, three rounds (58.2, 64.4, and 73.2) of the Eurobarometer

(respectively 2002, 2005-2006, 2010); and for Study 5, Eurobarometer 64.4 (2005-2006) and 73.2 (2010).

Table 2: Overview of the European countries included in each study

Study	**1**	**2**	**3**	**4**	**5**
Country					
Austria	■	■		■	■
Belgium	■	■	■	■	■
Bulgaria	■		■	■	■
Cyprus	■		■	■	
Czech republic	■	■		■	■
Denmark	■	■	■	■	■
Estonia	■	■	■	■	■
Finland	■		■	■	■
France	■	■	■	■	■
Germany	■	■	■	■	■
Great Britain	■		■	■	■
Greece	■			■	■
Hungary	■	■	■	■	■
Ireland	■		■	■	■
Italy	■	■		■	■
Latvia	■			■	■
Lithuania	■			■	■
Luxembourg	■			■	
Malta	■			■	
Norway			■		
Poland	■	■	■	■	■
Portugal	■	■	■	■	■
Romania	■			■	■
Slovakia	■		■	■	■
Slovenia	■	■	■	■	■
Spain	■	■	■	■	■
Sweden	■	■	■	■	■
Switzerland		■	■		
The Netherlands	■	■	■	■	■
Total N countries	27	16	20	27	24

The final sample size per study is also presented in Table 1, classified by gender. With the exception of Study 2, a subsample of people between 20 and 65 years old was selected. This age range is frequently used in European research, in order to include potential labor forces (Alavinia & Burdorf, 2008). Study 2 has an age range of 50 to 65 years, because the SHARE data only includes respondents aged 50 and above. Given the research objective of the second study, this is not a limitation, but adds interest for two main reasons: First, because of theEuropean context of an aging population together with policies aimed at this group, which envisage the enhancement of health as well as social and labor-market participation. Second, because during economic instability, people at both ends of the age spectrum are especially vulnerable to marginalization in the labor-market (Eurofound, 2013). When people over 50 become unemployed, the chances of them finding a new job are low (Eliason & Storrie, 2009a). Table 2 gives an overview of the European countries included in each study. In total, almost the full geographical range of Europe is covered

Eurobarometer

Data from the Eurobarometer was used for three of the five empirical chapters (studies 1, 4, and 5). The European Commission has fielded the Eurobarometer survey since 1973, to monitor public opinion. Occasionally, the survey also includes special items, such as questions about mental health and mental health care use in wave 58.2 in 2002, wave 64.4 in 2005–2006, and wave 73.2 in 2010. The Eurobarometer gathers information for the general population aged 15 and above in all 27 member states of the European Union. The basic sample design used in all the countries is a multi-stage, random (probability) sample of individuals within households within an area. Interviews are conducted on a face-to-face basis in the national language. The Eurobarometer has a repeated cross-sectional survey design. To my knowledge, the Eurobarometer represents the only set of cross-national surveys that combine: (a) Nationally-representative samples (for people aged 15 and above), (b) measurements of mental health status, (c) measurements of mental health care utilization, (d) questions about psychotropic medication use, (e) employment status, (f) broad cross-national institutional variation, and (g) several periods; with at least one before and one during/after the economic crisis.

To ensure nationally representative samples, post-stratification weights were applied according to demographics, using the most recent census data for each country. Further

information concerning the construction of these weights is available elsewhere: [http://www.gesis.org/eurobarometer-data-service/survey-series/standard-specialeb/weighting-overview/]. In line with the suggestions of other authors (Frohlich, Carriere, Potvin, & Black, 2001), I did not weight the samples according to population size, as the population sizes of the sampled countries are highly heterogeneous.

In addition, I should point out that the response rates per country are available only for wave 58.2 [http://ec.europa.eu/health/ph_determinants/life_style/mental_eurobarometer.pdf] and not for waves 64.4 and 73.2, which is an important limitation of the Eurobarometer data. The response rate of wave 58.2 ranges from 32% (Denmark) to 84% (France). In each study, I have merged the data from East and West Germany, and from Northern Ireland and the rest of the United Kingdom.

European Social Survey

The European Social Survey (ESS) is an academically driven, population-based social survey, designed to chart and explain the interaction between changing institutions in European countries, and the attitudes, beliefs, and patterns of behavior of their inhabitants [http://ess.nsd.uib.no/ess/]. The ESS is a biennial cross-sectional survey, established in 2001. It is a multi-country survey, now covering over 30 nations. The ESS sample is designed for each country, following a strict, randomized probability procedure, and data is gathered by means of standardized face-to-face interviews. ESS information is representative for the general population aged 15 years and above living in private households, irrespective of their language, citizenship, and nationality. An array of topics is covered in each round. One consistent core module of questions appears in every ESS round and accounts for approximately half of the questionnaire. The other half comprises rotating modules on specific topics thought to deserve extra attention.

For the purposes of Study 3, data from round 3 (2006) and round 6 (2012) of the ESS was used. In the ESS 3 and ESS 6, the rotating module "personal and social well-being" is included (Huppert, 2006; ESS [www.europeansocialsurvey.com]). This module covers different indicators of mental health: Negative indicators of distress, as well as indicators of positive functioning.

The ESS 3 and ESS 6 respectively cover 24 and 27 European countries. The response rates range from 46,0% (France) to 73,2% (Slovakia) in ESS 3, and from 36,0% (Italy) to 78,6% (Albania) in ESS 6. All the data was weighted using the design weights provided by the surveys. They have also been corrected for slightly different probabilities of selection.

Survey of Health, Ageing and Retirement (SHARE)

The SHARE provides multidisciplinary and cross-national panel data based on health, socioeconomic status, and social and family networks. The survey is multi-national and is conducted in an increasing number of European countries in every wave. All aspects of the data collection and data generation processes have been ex-ante harmonized according to strict quality standards in order to minimize artifacts created by country-specific survey designs (Börsch-Supan et al., 2013). The SHARE consists of probability samples, drawn from population registers or from multistage sampling. Respondents aged 50 or above, together with their partner, were interviewed face-to-face using structured computerized questionnaires. More details about the sampling procedure can be found elsewhere (Börsch-Supan et al., 2013; Börsch-Supan & Jürges, 2005). The first wave was carried out in 2004–2006, the second in 2006–2008, the third in 2008–2009, the fourth in 2010–2012, and the fifth in 2012–2014. The third wave, also called the SHARELIFE, was intended to complement the panel data with retrospective life histories. Accordingly, wave 3 only includes respondents who had also been included in wave 1 and/or wave 2.

Data from the fourth wave of the SHARE was used for Study 2. This was collected between 2010 and 2012 in 16 European countries (see Table 2). The response rate ranges from 39.0% (the Netherlands) to 64,0% (Hungary). All the items used in the models of Study 2 were retrieved from the fourth wave, except sociodemographic data and information on wealth, which were taken from the first wave of the SHARE the respondents had participated in.

Given the research objective of Study 2, there were a number of reasons for me to use data from wave 4 of the SHARE rather than from the others. Waves 1 and 2 were carried out before the economic crisis, and contain a smaller number of countries. The crisis started at the end of 2007, and the period from 2010 to 2012, was in the middle of the severe recession, whereas 2012 to 2014 (wave 5) was already at the end of the recession. Many countries stabilized during the period from 2012 to 2014 and in some countries recovery had already

started, such as in Czech Republic, Portugal, and Estonia.[6] In addition, several studies that have investigated the effects of the recession or have been framed within the context of the recession, use data for 2011 or even earlier (Gili et al., 2013; Kingston et al., 2015; Madianos et al., 2011; Rubery & Rafferty, 2013; Warren, 2015). It was accordingly useful to estimate my models by using data from a similar period in order to enable comparisons of the findings. Moreover, if I had used wave 5, I would have lost three important countries: Poland, Portugal, and Hungary.

Missing values

None of the variables included in the five studies, with the exceptions of the household wealth measurement in Study 2 and the income measurement in Study 3, contain more than 5,7% missing values. In Table 3, the accumulated number and percentage of missing values are presented for the male and female subsamples (20–65 years; Study 2: 50–65 years) and for men and women together for Study 5 (20–65 years). These figures range from 3,1% (Study 5) to 10,5% (Study 2). As the percentages are relatively low in each study, it was acceptable to omit these cases from the respective subsamples.

Table 3: Overview of accumulated missing values per study (n and percentage)

Study		**1**		**2**		**3**		**4**		**5**	
		n	%	n	%	n	%	n	%	n	%
Accumulated	men	530	5,8	1518	9,2	1422	5,5	592	2,6	1172	3,1
missing values	women	568	5,6	1389	10,5	1596	5,5	632	2,2		

The wealth and income variables have a much larger proportion of missing values (up to 20%). Because these are often not randomly distributed, multiple imputation was performed in Study 2 for the wealth measurement, and a category of missing income was included in Study 3 to retain the relevant respondents in the sample.

[6] For each country included in at least onef of the five studies, I have constructed a graph (see Appendix 1) with the unemployment rates from 2004 to 2014 in order to see the broader picture of the trend of the unemployment (Source: Eurostat). When having a look at the countries included in study 2, from the period 2010-2012 (wave 4 of the Share) to 2012–2014 (wave 5), we see that many countries have stabilized (Belgium), some are recovering (Czech Republic, Estonia) and there are also some that still show an increase in unemployment rates (such as Italy). However, these countries already had a high unemployment rate in 2010–2012.

2. Measurements

Depending on the specific dataset and research objectives, the independent and dependent variables, as well as their construction, vary somewhat across the five studies. Therefore, in Table 4, an overview is presented of the dependent, independent, and control variables per study.

Mental health care use

As the main objective of this work is to test the medicalization of unemployment, only medical professionals who are allowed to prescribe medication were incorporated. In each study, general (primary) and specialized care use are distinguished, because previous research – for example concerning gender differences (Buffel, Van de Velde, & Bracke, 2014) and income inequalities (van Doorslaer & Jones, 2004; van Doorslaer, Koolman, & Jones, 2004) – shows that different mechanisms are at work depending on the type of care. In the majority of European countries, general practitioners are more accessible and available than specialists (van Doorslaer et al., 2004). Given that the focus of the study is on mental health care use, consultations with a general practitioner (GP) for mental health problems are used to assess general mental health care, and consultations with a psychiatrist for specialist mental health care. The pivotal role of GPs as mental health care providers for emotional or social problems has been repeatedly confirmed (Buffel, Colman, Dereuddre, & Bracke, 2014; Paykel & Priest, 1992).

An important difference between contacting a medical professional and using medication is that for contacting a medical professional, the initiative lies mainly with the patient – whether or not advised by family, friends, colleagues, a therapist, or a religious figure (priest, imam, rabbi, etc.) – whereas psychotropic drugs require a prescription from a medical professional, and consequently the patient can still choose whether or not to take them. Accordingly, using prescribed drugs is more complex and therefore in Study 1, the models for antidepressant use are controlled by adding contacting a GP and/or a psychiatrist for emotional and psychosocial problems. In this way I try to get an idea of whether medicalization of the unemployed is mainly initiated by themselves or also by a decision and advice from medical professionals. Unfortunately, there is no information available about whether patients had asked the medical professional for medication or not.

In the three waves of the Eurobarometer, respondents were asked whether they had sought help from a medical professional for a mental health problem in the 12 months preceding the interview. Two dummies were constructed: Contacting a general practitioner and contacting a psychiatrist (1 = yes; 0 = no). No information was available about the number of contacts. These two variables recording professional care use for mental health problems are the main outcome variables of Study 1, Study 4, and Study 5. In Eurobarometer 73.2, the respondents were also asked whether they had taken any antidepressants. I have distinguished between users (= 1) and non-users (= 0). However, antidepressant use is only an outcome variable in Study 1, and not in Study 4 and Study 5, because the methodological method – to allow a change effect – in these studies requires an outcome variable with data available for at least two periods (out of 2002, 2005–2006, and 2010).

Table 4: Overview of the dependent and independent variables at individual level per study

Study	1	2	3	4	5
Variable					
Mental health care use	*Dependent variable*	*Dependent variable*		*Dependent variable*	*Dependent variable*
Specialist care (psychiatrist)					
General care	GP consultations for mental health problems (0/1)	Number of GP consultations		GP consultations for mental health problems (0/1)	GP consultations for mental health problems (0/1)
Medication use	antidepressant use (0/1)	medication for depression or anxiety (0/1)			
Need factors	*Dependent variable*	*Dependent variable*	*Dependent variable*	*Dependent variable*	
Mental health	MHI-5	EURO-D	CES-D 8	MHI-5	MHI-5
General health		General health			
Alcohol use		Heavy episodic drinking			
Employment status					
Employed					
	Job security (0/1)	*Type of contract* *Working hours*			
Unemployed					

		Displaced or not	*Looking for work*		
Non-employed					
Housewife/men	Inactive due to illness/retired				Inactive due to illness/retired
Inactive due to illness					
Retired		(Early) retired			
Student					
gender differentiated analysis					
Individual control variables					
Gender					
Age	Metric	Categorical	Categorical	Metric	Metric
Education	Years of schooling	Education (isced-97)	Years of schooling	Years of schooling	Years of schooling
	Categorical	Categorical	Metric (+ education^2)	Categorical	Categorical
Marital status		Partner status			
Migratory status					
Degree of urbanization (cat.)					
Financial status	Perceived financial insecurity	Household wealth	Household income		
Attitude towards people with MH problems	Social distance towards people with MH problems				

In addition, in Study 2, a dummy variable for psychiatrist consultations (1 = yes; 0 = no) is constructed, based on the question in the SHARE about whether the respondent had consulted a psychiatrist in the 12 months before the interview. The number of consultations with a GP during the same period was also introduced as a count variable. The SHARE differs from the Eurobarometer, as in the former there is no explicit reference to the reason for a GP consultation. Therefore, the GP could also have been contacted for physical complaints. Accordingly, in Study 2, when GP consultations is the outcome variable, I also controlled for general health (self-rated health) in addition to mental health. In the SHARE, the respondents were also asked whether they were taking medication for anxiety and depression at least once a week. In line with Study 1, a dummy variable for medication use was constructed (1 = yes; 0 = no).

Mental health

In this work, mental health is considered as a continuum and a multidimensional concept (Ormel, et al., 1995). Dependent on the dataset, three different scales were used to measure depression-related symptoms. The short 5-item version of the Mental Health Inventory (MHI-5) is included in Eurobarometer 58.2, 64.4, and 73.2 and is a subscale of the SF-36 Version 2 (Ware & Sherbourne, 1992). The scale measures depression and anxiety-related complaints. For example, respondents were asked how often, during the month prior to the interview, they had felt so down in the dumps that nothing could cheer them up, or how much of the time they had felt restless, fidgety, or impatient.[7] The scale ranges from 1 to 5, with high scores pointing to less psychological distress (good mental health) and low scores indicating more distress (poor mental health). If one or two items were missing, mean substitution was applied. The MHI-5 scale can be used to measure and compare mental health in a non-patient population (McCabe, Thomas, Brazier, & Coleman, 1996).

In the SHARE, baseline depressive symptoms are assessed using the European Depression scale (EURO-D) (Prince et al., 1999), with the EURO-D items all taken from the Geriatric Mental State Examination (GMS) (Copeland, Dewey, & Griffiths, 1986). Throughout the years and over several studies, the EURO-D has established a proven validity. This scale contains 12 items that specify recent depressive symptoms (e.g., "In the last month, have you cried at all?"), scored as a sum of "no" (0) and "yes" (1, indicating presence of a symptom)

[7] The specific items of the three mental health related scales are provided in appendix 2.

answers. Five items were phrased in positive terms (e.g., “do you keep up your interests”). The EURO-D scale is one of the generated variables of the SHARE survey.

The eight items of the Center for Epidemiologic Studies-Depression Scale (CES-D) are incorporated in the subjective well-being module, included in rounds 3 and 6 of the ESS. The CES-D 8 is designed to identify populations at risk of developing depressive disorders (Radloff, 1977), but is not meant to be used as a clinical diagnostic tool by itself. Respondents were asked to indicate how often in the week before the survey they had felt or behaved in a certain way (e.g., felt depressed, slept badly). Response categories range from 1 (none or almost none of the time) to 4 (all or almost or all of the time). Scale scores were assessed using non-weighted, summated rating and ranged from 0 to 24, with higher scores indicating a greater frequency and severity of depressive complaints. If four or fewer items were missing, mean substitution was applied.

The internal consistency of the three scales measured by Cronbach’s alpha is good, as can be seen in Table 5. There is also evidence for the comparability and validity across European countries of the three scales: MHI-5 (Lehto-Järnstedt, 2003), EURO-D (Copeland et al., 1999), and CES-D 8 (Missinne et al., 2014; Van de Velde et al., 2010).

Table 5: Internal consistency of the mental health scales (MHI, EURO-D, and CES-D)

Study		1	2	3	4	5
	Dataset	Eurobarometer	Share	ESS	Eurobarometer	Eurobarometer
	Round	73.2	4	3 & 6	58.2, 64.4, & 73.2	64.4 & 73.2
	Scale	MHI	EURO-D	CES-D	MHI	MHI
Cronbach's alpha	men	0 ,767	0 ,790	0 ,802	0 ,803	0 ,804
	women	0 ,797	0 ,809	0 ,834	0 ,828	

As already mentioned, the SHARE enables gender-specific indicators of mental distress to be taken into account. Men and women react differently to emotional and psychosocial distress (Simon, 2002). Because women suffer more from anxiety and depressive disorders (internalizing problems), whereas men suffer more from impulsive and addictive problems

(externalizing problems), such as alcohol consumption (Piccinelli & Wilkinson, 2000; Vesga-Lopez et al., 2008), a measurement of problematic drinking behavior is included in addition to the EURO-D. In the SHARE, respondents were asked how often they had consumed six or more drinks on one occasion in the three months prior to the interview. There are seven answer categories: (1) every day or almost every day, (2) five or six days a week, (3) three or four days a week, (4) once or twice a week, (5) once or twice a month, (6) less than once a month, and (7) not at all in the last three months. As one standard alcohol drink contains roughly 10 grams of pure alcohol, respondents with an answer between 1 and 4 can be considered as heavy episodic drinkers according to the World Health Organization categorization (WHO, 2014). Heavy episodic drinking (HED) is defined as drinking at least 60 grams of pure alcohol on at least one occasion in the seven days prior to the survey.

Employment status

In the Eurobarometer, respondents were asked what their occupation was at the time. They could choose from 18 categories, in turn categorized in three broad groups: Non-active, self-employed, and employed. As the focus of this study is on the unemployed, the last two groups are taken together and form the group of the employed. The first category, the non-active, consists of four subcategories: Unemployed, homemaker, student, and retired or unable to work due to illness or disability. In Study 1, employment status contains these four subcategories and the employment category. In Study 4 and Study 5, the categories are reduced to the three main categories: unemployed, employed, and non-employed (homemakers, students, retired people, and those unable to work due to illness or disability).

For the research objective of Study 1, job insecurity is also addressed. In Eurobarometer 73.2 (2010), the employed were assessed with regard to their job insecurity using one single item with four answer categories. Respondents were asked whether they tended to agree or disagree with the statement "Your job security is under threat" (1 = totally agree, 2 = tend to agree, 3 = tend to disagree, 4 = totally disagree). I dichotomized this categorical variable, as the first two categories denote job insecurity and the last two job security. In literature about job insecurity, mental well-being, and care or medication use, it is a common strategy to dichotomize job insecurity when it is measured by one item with four answer categories and when the distinction between security and insecurity is clear (De Witte, 1999; Rugulies et al.,

2010). In addition, by dichotomizing the variable, cross-national differences in response style can be partly captured.

In the SHARE, respondents have a choice of five categories to describe their employment situation. This differs from the Eurobarometer, in that there is no option for "student", and being retired, and unable to work due to illness or disability are separate categories. In Study 2, employment status has five categories, and within the group of the unemployed, a further distinction is made between those who were unemployed because their place of work had closed and those who were unemployed for other reasons (e.g. laid off, reassignment, end of contract, or other reasons). The first can be termed the displaced unemployed.

The ESS includes the question "Which of these descriptions best describes your situation (in the last seven days)?" There are nine answer categories: (1) In paid work; (2) in education; (3) unemployed and actively looking for a job; (4) unemployed, wanting a job, but not actively looking for a job; (5) (permanently) sick or disabled; (6) retired; (7) in community or military service; (8) doing housework, looking after children or other people; and (9) other answer possibilities. As in Study 4 and Study 5, I reduced the categories to three broad groups: The unemployed (answers 3 and 4), the non-employed (answers 2, 5, 6, and 8), and the employed (answer 1). In accordance with the specific research questions of Study 3, further distinctions were made within each broad category (see below).

3. Analysis methods

Multilevel

Given the research questions and the sampling strategy, my approach required a specific quantitative methodology. First, some of the research questions relate to the influence of the context and/or the period. A quantitative method was needed in order to grasp how the relations between employment status, mental health, and mental health care use are affected by the macroeconomic and institutional context. Second, the hierarchical structure of the samples required taking into account the clustering of individuals within a certain context. Therefore, *multilevel analyses* were performed in the five empirical studies (Hox, 2010), with the statistical software package MLwiN.

The respondents are nested in higher-level units; more specifically they are clustered within countries (studies 1–5), regions (Study 2), and/or country-years (studies 3, 4, and 5). The individual observations are therefore not completely independent: Respondents from the same country tend to be more similar to each other (for example, because of the common history they share). As a result, the average correlation between variables measured for respondents from the same country will be higher than for respondents from different countries. If this clustering is not taken into account, the assumption of independence of the observations will be violated. This would entail the estimates of the standard errors of conventional statistical tests being far too small, resulting in many spurious "significant" results. In addition, multilevel models are specifically designed to analyze variables for different levels simultaneously, using a statistical model that properly includes the various dependencies. In each study, I have variables at the individual as well as at the country level. For example in Study 1, the unemployment rates and number of GPs and psychiatrists per 10 000 inhabitants are included as control variables. Moreover, in studies 2, 3, 4, and 5, I aimed to further understand the individual relations between unemployment, mental health, and mental health care use though examining the moderating impact of context variables (regional and national unemployment rate, GDP per capita, etc.). Multilevel modeling enables testing the impact of macro-level indicators on an individual-level relation via cross-level interactions.

For the last three studies (3, 4, and 5), change variables were also able to be included (change in unemployment rate, GDP, government expenditure), as two or three repeated waves of the cross-sectional surveys were used (2006 and 2012 for the ESS; 2002, 2005, and 2010 for the Eurobarometer). However, as is the case for most repeated cross-sectional surveys, I faced the problem of realizing an adequate number of higher-level units. Given the cross-national nature of the ESS and the Eurobarometer, however, there is a possible solution to this lack of repeated waves: Considering the clustering of different waves clustered within countries (Fairbrother, 2014). National-level, time-series cross-sectional data offers the advantage of enabling the simultaneous modeling of cross-sectional effects, which explain between-country differences, and longitudinal effects, which explain within-country differences over time. A disadvantage is that these models presuppose that social change happens within countries over time: Time trends are nested within each survey each time. Given the limited number of available survey-years containing information about professional care seeking because of mental health problems, reliably estimating the assumption that survey-years are nested within countries by comparing the model fit to that of the alternative model is not

warranted (Van der Bracht & Van de Putte, 2014). Therefore, I had to assume the nesting of survey-years within countries. However, notwithstanding that there was a global financial crisis, not every country in the three studies was affected by or responded to the crisis in the same way (Stuckler et al., 2009), which partially supports this assumption. For the models of the last three studies the Markov Chain Monte Carlo (MCMC) estimation procedures were used, this approach has been proven to be far more robust when including several higher level variables and cross-level interactions (Stegmueller, 2013). More information regarding the specific research design and construction of the change variables are presented in Study 3, Study 4, and Study 5.

Logistic regression analysis and y-standardization

Contingent on the type of dependent variable, different multilevel analyses were carried out: Multiple regression for the metric variables (MHI-5, EURO-D, & CES-D), logistic regressions for the dichotomous outcomes (HED, psychiatrist consultations, GP consultations, and medication use), and negative binomial for the count variable (number of GP consultations) in Study 2. A negative binominal regression was needed in order to cope with the problem of over-dispersion (Van Rossem, 2010). For each analysis, the corresponding assumptions were tested. In Table 6, I give an overview of which analyses were performed per study. More detailed information about the analyses and the use of internal interaction effects with conditional factors (studies 1, 2, and 3[8]), change variables according to Fairbrother (2014) (studies 3, 4, and 5) and predicted probabilities (Study 5), can be found in the respective studies.

[8] Job insecurity in study 1; displaced versus non-displaced unemployed in Study 2; and type of contract, work hours, active/passive unemployed, and the subcategories of the non-employed in Study 3.

Table 6: Overview of analysis methods per study

Study	1	2	3	4	5
Method					
Multilevel analysis	Hierarchical 2 levels	Hierarchical 3 levels	Hierarchical 3 levels	Hierarchical 3 levels	Hierarchical 3 levels
Logistic					
Multiple					
Negative binomial					
Cross-level interaction					
Internal interaction effects					
Change effects MCMC[a]					
Country-specific analyses					Predicted probabilities
Fixed country effect analysis	Sensitivity analysis				Sensitivity analysis
Jackknife test			Sensitivity analysis		Sensitivity analysis

[a] Markov Chain Monte Carlo estimation procedure

As the majority of the analyses are logistic, some additional information is given with regard to the use of odds ratios. Many sociologists use logistic regression analysis without recognizing its complexity. They often ignore the fact that logistic regression estimates are affected by omitted variables (unobserved heterogeneity), even when these variables are unrelated to the independent variables in the model (Mood, 2010; Breen & Karlson, 2013). Moreover, scholars who are aware of this, nevertheless disagree about possible solutions to problems related to unobserved heterogeneity and rescaling (Mood, 2010; Breen & Karlson, 2013).

My study aims to simultaneously compare estimates across models and across groups. I compare the relations between employment status, and mental health care and medication use across several nested models to examine whether I can ascribe these relations to differences in mental health (studies 1, 2, 4, and 5). In addition, I explore whether these relations differ between men and women (studies 1, 2, and 4). In the concluding part of Mood's article (2010, p. 80), the characteristics of estimated effects on binary dependent variables are listed,

together with the corresponding methods that are preferred to take the problem of unobserved heterogeneity into account.

Table 7: Characteristics of estimated effects on binary dependent variables (Mood, 2010, p. 81)

	Capture nonlinearity	Comparable across groups, samples etc.	Comparable across models	Conditional effect estimate[a]
Measures based on odds and log-odds				
Odds ratio	Yes	No	No	Yes
Log-odds ratio	Yes	No	No	Yes
y-standardization	Yes	No	Yes	No
Allison's procedure	Yes	Yes[b]	No	Yes
Heterogeneous choice models	Yes	Yes[c]	No	Yes
Measures based on percentages				
Average marginal effect	No	Yes	Yes	No
Average partial effect	Yes[d]	Yes	Yes	No
Marginal effect	Yes[d]	No	No	Yes
ΔP	Yes[d]	No	No	Yes
Linear probability model	No	Yes	Yes	No[e]

[a] *In a multivariate model.*
[b] *If assumption that one variable has same effect in groups etc. is correct.*
[c] *If assumption about the functional form of the relationship is correct.*
[d] *If estimated at several places in the distribution.*
[e] *If the true relationship is nonlinear.*

The four characteristics of the estimated effects are: (1) They capture nonlinearity; (2) they are comparable across groups, samples etc.; (3) they are comparable across models; and (4) they indicate conditional effects (in a multivariate model). By using odds ratios in my studies, I capture nonlinearity (1) and am able to indicate conditional effects (4). In addition, I opted to use y-standardization, to make it also possible to compare the estimates across the nested models (Mood, 2010; Breen & Karlson, 2013). This means that the coefficients are divided by the sum of the standard deviation of the predicted logit, and the assumed standard deviation of the error term (which is always the square root of 3.29). However, when I compared the odds ratios of men with those of women, I recognized that I still faced the problem of unobserved heterogeneity, as this can vary between men and women. In Mood's (2010, p. 80) table (Table 7), we can see that there is no solution that is suitable for both comparing odds ratios across models and across groups. In addition, Mood (2010) argues that because one estimate cannot normally fulfil these criteria simultaneously, we need to carefully consider what is most relevant for our purposes, and if our estimates do not fulfil these criteria we must report this.

In conclusion, I opted to use y-standardization, because this method seems the best fit with regard to my research objectives, but I am aware that each solution has its limitations.

Macro variables

In Table 8, an overview is provided of the analysis levels per study and which higher-level variables are included. In each study, with the exception of Study 2, individuals are clustered in countries and the national unemployment rate is taken into account. In Study 2, individuals are clustered in regions, or in statistical terms, NUTS (Nomenclature of Territorial Units for Statistics), which are clustered in countries. Inspired by the social norm theory of unemployment, regional unemployment levels – as a degree of adherence to the norm of unemployment – are investigated with regard to their relation with the mental health and health care use of the unemployed. This theory argues that regional level is more suitable than country level, as the latter may not adequately capture what exists in people's life and work environment.

In Study 3, Study 4, and Study 5, individuals are also nested in country years, as I am interested in the impact of changing macroeconomic conditions and cuts in government expenditure – as result of the recent economic crisis – on mental health and professional care use. The most generic way to describe the state of a country's economy is by using the unemployment rate and the Gross Domestic Product (GDP) (Eurofound, 2013; Stuckler, Basu, Suhrcke, Coutts, & McKee, 2009). Both indicators reflect the economic cycle and thus the economic and labor-market conditions in a country (Economou, Nikolaou, & Theodossiou, 2008; Gerdtham & Ruhm, 2006; Ruhm, 2000). In particular, a steep increase in the national unemployment rate is relevant to capture the economic turmoil and insecurity faced by the population during periods of economic instability. It closely reflects the everyday experience of individuals (Stuckler, Basu, Suhrcke, Coutts, et al., 2009). In addition, changes in the GDP can be relevant to measure strong economic shifts, as the technical definition of a recessionary episode is based on changes in the real GDP growth rate (European Commission, 2010a). In the last empirical study, I tried to control for possible austerity effects. In line with the work of Antonakakis (2014, 2015), changes in total government expenditure are used as a proxy for fiscal austerity. For more information about this change variable, see Study 5.

Table 8: Overview of the analysis levels per study and the higher-level variables (context and change variables)

Study	1	2	3	4	5
Analysis level					
Individual					
Regional		NUTSlevel 1 (or 2) 97			
Period x country			40 (2006, 2012)	96 (2002, 2005/6, 2010)	48 (2005/6, 2010)
Country	27	16	20	27	24
Macro variables					
Context variables					
Unemployment rate	Eurobarometer 2010	Regional Eurostat 2010	Eurostat 2005	Eurostat 2001, 2004, 2009	Eurostat 2005, 2009
GDP	GDP per capita Eurostat 2010		GDP per capita Eurostat 2005	Real GDP growth rate Eurostat 2001, 2004, 2009	GDP per capita Eurostat 2005, 2010
Unemployment generosity					CWED 2[a]
Health care generosity					OECD & WHO
% job insecure of total employed	Eurobarometer 2010				
GPs per 10,000 inhabitants	OECD 2010			OECD 2010	
Psychiatrists per 10,000 inhabitants	MH atlas 2005			MH atlas 2005/2011	
Gatekeeping system				OECD 2010	
Public disability spending					Eurostat
Total government expenditure					WDI[c]
ALMP[b] expenditure					Eurostat & LMP[d]
Change variables					
Change in unemployment			Eurostat 2005, 2011	Eurostat 2001, 2004, 2009	
Change in GDP			Eurostat 2005, 2011	Eurostat 2001, 2004, 2009	
Change in government expenditure					WDI 2005, 2009

[a] Comparative Welfare Entitlements Dataset 2 [http://cwed2.org/] , [b] Active Labor-market Programmes, [c] World Development Indicators [data.worldbank.org/data-catalog/world-development-indicators], and [d] Labor-market Policy [ec.europa.eu/eurostat/web/labour-market/labour-market-policy]

In Study 1 and Study 4, I also controlled for some institutional characteristics of the health care sector. Given the outcome variables, I opted to use the number of GPs and psychiatrists per 10 000 inhabitants as indicators of supply. In Study 4, I also retested the models, while taking into account whether or not there was a gatekeeping system. In such a system, the GP acts as a gatekeeper to other types of care (specialist and hospital). In Study 5, institutional characteristics of unemployment policies and the health care sector are also included as items reflecting the generosity of unemployment benefits and health care. Additionally, some expenditure measurements are controlled for, such as public expenditure on Active Labor-market Programs, public disability spending, and total government expenditure. More information about the construction of the decommodification measurements and the argumentation for taking these expenditure measurements into account are given in Study 5.

In Table 8, the sources per macro-indicator are also provided. Most of the external data is from Eurostat. Depending on the availability and model fit, data for the year before the survey period is used, as a time lag can be expected, especially with regard to the changing macroeconomic context and austerity policies.

4. Descriptive analyses: Who are the unemployed?

Before detailing the empirical studies, I briefly examine the unemployed compared with the employed, in terms of some basic socioeconomic and demographic characteristics. In Table 9, the percentages of unemployed and employed are presented by gender and period (pre-crisis and during crisis). In both periods and for the two different surveys (ESS and Eurobarometer, as only data for one period of the SHARE is used), the percentage of employed is much higher for men than for women. However, the reduction in the male employment percentage is lower in 2010 and 2012 than for women (from 2005–2006 to 2010 it remains the same for women). For both men and women and in the two surveys, the percentage of the unemployed increases from the pre-crisis to the crisis time, but this increase is again stronger for men.

Table 9: Employed and unemployed (%) in pre-crisis and during crisis time, by gender

		Men		Women	
		Employed	Unemployed	Employed	Unemployed
ESS	*2006*	76 ,4	6 ,6	59 ,4	5 ,9
	2012	70 ,2	10 ,9	58 ,6	9 ,1
Eurobarometer	*2005-2006*	72 ,4	7 ,6	55 ,6	8 ,2
	2010	67 ,8	12 ,0	55 ,6	10 ,4

Despite the fact that unemployment has recently become more omnipresent – as middle and higher-educated individuals also face a greater possibility of becoming unemployed – the majority of the unemployed are still low or middle educated. The composition of the group of unemployed compared with that of the employed also differs with regard to age, immigration status, marital status, and household income and welfare: The unemployed are on average younger, more likely to be divorced or single, less wealthy, and more often have an immigrant status than their employed counterparts. Notwithstanding the fact that the unemployed have a higher likelihood of having mental health problems, they have a more negative attitude toward people with mental health problems than the employed do. No significant differences are observed in terms of community type (rural, small town, large city). These descriptive observations are to a large extent similar for men and women and for the three surveys (with the exception of the age difference in the SHARE).

Table 10: Employed and unemployed (%) by demographic and socioeconomic variables (Eurobarometer, Share and ESS)

	Eurobarometer (2010)						**SHARE** (2010-2012)						**ESS** (2006, 2012)					
	Men			Women			Men (50-65)			Women (50-65)				Men (50-65)			Women (50-65)	
	Employed	Unemployed		Employed	Unemployed		Employed	Unemployed		Employed	Unemployed			Employed	Unemployed		Employed	Unemployed
%	67,8	12,0	**sig**	55,6		**sig**	51,4	7,1	**sig**	42,7	5,2	**sig**		73,2	8,8	**sig**	59,0	7,6	**sig**
Age	41,7	39,9	***	10,4	39,3	***	56,1	56,3		55,5	55,8			42,4	39,8	***	42,8	39,6	***
Education (%)																			
low	17,3	34,0	***	14,7	30,1	***	23,1	40,4	***	22,5	44,4	***	**Education**						
medium	44,5	42,5		41,6	43,6		47,6	43,8		45,5	38,9	***	# years	13,5	11,8	***	13,8	12,1	***
high	37,1	21,6	***	42,1	24,3	***	29,3	14,8	***	32,0	16,7	***							
Marital status (%)																			
Married/legal cohabitated	74,5	59,5	***	70,3	62,2	***	80,3	67,0	***	71,8	63,5	***		59,5	37,7	***	57,1	44,5	***
single	19,1	30,0	***	16,0	22,0	***	7,5	13,1	***	7,4	7,2			30,8	48,8	***	25,9	34,6	**
divorced	5,7	10,2	***	10,8	12,7	***	10,8	18,2	***	15,6	23,6	***		8,9	12,1	***	13,6	17,3	*
widowed	0,6	1,3		2,9	3,2		1,3	1,7		5,2	5,7			0,8	1,4		3,4	3,6	
Type of community (%)													**Income** (% of median)						
rural	36,0	34,9		33,9	35,0		35,7	34,0		33,5	28,2		<50%	5,1	32,1	***	5,8	29,8	***
small urban	34,6	34,2		35,8	36,0		24,4	24,6		23,8	27,0	*	50-79	12,0	21,9	***	13,6	23,2	***
large urban	29,4	30,1		30,3	29,0		40,0	41,3		42,6	44,8		80-120	25,5	15,3	***	25,3	16,4	***
Financial insecurity (yes, %)	34,5	66,4	***	37,1	65,7	***							>=120	42,6	10,1	***	38,8	10,8	***
Negative attitude toward People withMH problems (%)	26,5	28,1	***	21,3	27,9	***							missing	14,7	20,6	***	16,5	19,7	*
Wealth							335504	15247	***	297272	15382	***							
Migrant (yes, %)							8,4	14,9	***	9,9	14,5	***							

* p < 0,050 ** p < 0,010 *** p < 0,001 (Anova for metric variables, Chi2-test for categorical variables)

PART II

EMPIRICAL STUDIES

CHAPTER 7

Study 1. Medicalization of the uncertainty? An empirical study of the relations between unemployment or job insecurity, professional care seeking and the consumption of antidepressants

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Buffel V, Dereuddre R, & Bracke P (2015) Medicalization of the uncertainty? An empirical study of the relations between unemployment or job insecurity, professional care seeking, and the consumption of antidepressants. European Sociological Review, 31(4):446-459

In addition to concerns about the treatment gap in mental health care, an increasing number of researchers are paying attention to the medicalization of daily life. Framed in a context characterised by a growth in the use of antidepressants and at the same time economic instability, the aim of this study is to unravel the relations between employment status/job insecurity, seeking professional care for mental health problems, and antidepressant use. Data from the Eurobarometer 345 (2010) is used to perform gender-differentiated, multilevel logistic regression analyses. Our results show that, in accordance with the need hypothesis, part of the professional care use for emotional problems and part of the antidepressant use among the unemployed and those in insecure jobs is associated with their comparatively worse mental health status. In addition, medicalization processes contribute to more frequent care and antidepressant use, irrespective of mental health status, among the unemployed: increased antidepressant consumption among women in insecure jobs and more GP-consultations for emotional health problems among their male counterparts. In conclusion, evidence is found for both the need hypothesis as well as the medicalization hypothesis. In addition, we cannot conclude that women are more vulnerable to medicalization than men are.

Introduction

In addition to concerns about the treatment gap in mental health care (Alonso et al., 2007), an increasing number of researchers are paying attention to the growing use of psychotopic medication, and are concerned about the medicalization of daily life (Christiaens & Bracke, 2014). Recent research indicates a substantial growth in the use of antidepressants (Guaiana et al., 2005), for treatment of symptoms other than just depression (Colman et al., 2008). Non-clinical factors, such as employment status, are increasingly associated with treatment-seeking behavior and psychotropic drug consumption (Colman et al., 2008). In the current context of economic decline and instability (Rugulies et al., 2010), the few studies that shed light on the positive relation between unemployment and antidepressant use (Colman et al., 2008) and between job insecurity and antidepressant use (Rugulies et al., 2010) have become increasingly relevant.

For a long time, the majority of research on employment status and mental health has primarily differentiated between the employed and the unemployed (Virtanen et al., 2006). Evidence consistently shows that unemployment is associated with more depressive feelings (Paul & Moser, 2009). However, the relation between employment status, mental health care and psychotropic drug use seems to be less straightforward. A few studies found that the unemployed are less inclined to seek specialised care than the employed (Alonso et al., 2007; Gouwy, 2008). Others have reported greater health care use among the inactive, irrespective of (mental) illness (Bijl & Ravelli, 2000; Yuen & Balarajan, 1989).

Although this dichotomy based on employment status is still relevant, researchers have recognised that there are also large mental health differences within the group of the employed (Virtanen et al., 2006). During the last decades, long-term employment in the same job has become relatively rare, as temporary or contract-based job opportunities are increasing (de Lange, Wolbers, & Ultee, 2013). In an attempt to cut costs and become more profitable, organisations have engaged in widespread layoffs and downsizing as well as more flexible use of Labor (de Lange et al., 2013). These changes have led to a heightened sense of job insecurity. In response, research concerning job insecurity has strongly increased and has demonstrated a link with more mental health problems (De Witte, 1999; Dekker & Schaufeli, 1995). However, studies that systematically examine how this higher risk of mental health

problems translates into health care and psychotropic drug use are, to the best of our knowledge, still non-existent.

The aim of this study is to unravel the relations between employment status, job insecurity, professional care seeking for mental health problems, and antidepressant use: Are unemployment and job insecurity related to general and specialised care and antidepressant use? Can we explain these differences in health care and antidepressant use by differences in the need for care (*the need hypothesis*)? If not, do the unemployed and/or those with job insecurity have a lower (*unmet need*) or instead a higher (*the medicalization hypothesis*) use of care and antidepressants, when taking mental health into account? Lastly, do these associations differ by gender?

Background

Job insecurity and unemployment in relation to medical mental health treatment

Job insecurity has been defined in several ways, but there are two main approaches: the multidimensional and the global approach (Kinnunen et al., 2003). The former emphasises the complicated nature of job insecurity, for example making the distinction between the probability of job-loss or only one feature of it. The global view or unidimensional approach considers job insecurity as the threat of job loss (Sverke & Hellgren, 2002). As we use data from the Eurobarometer 345, which contains only one general item on job insecurity, our study is based on the global view.

Job insecurity can be distinguished from unemployment by its subjective character, which contrasts with actual job-loss and being unemployed (Sverke & Hellgren, 2002). However, research suggests that perceived threat concerning employment security may have consequences equally as detrimental as job loss itself, making it interesting to take both into account (Dekker & Schaufeli, 1995).

The negative mental health consequences of unemployment (Paul & Moser, 2009) and job insecurity (De Witte, 1999) are well documented, while it remains unclear how unemployment and job insecurity are related to seeking care for mental health problems and the consumption of antidepressants. Hence, two theoretical perspectives are presented to discuss these relations.

Most empirical research on mental health care use is situated in a public health and social epidemiological framework, which adopts the biomedical model. A second strand of research is sociologically oriented and accentuates the medicalization of social problems and asymptomatic health care use or over-consumption (Conrad, 1992). The first perspective defines unmet need for mental health care as problematic, whereas the second tends to take a reverse stance by paying attention to the increasing use of psychotropic drugs in post-industrial countries and warning against the expanding control function of medicines and medical professionals (Foucault, 1963; Zola, 1976). Although the medicalization perspective has sound theoretical foundations, it has been criticised because of a paucity of empirical studies that test its main propositions (Christiaens & van Teijlingen, 2009). By contrast, the biomedical model dominates empirical research on mental health care use. An exception is one recent study on health care and medication use in relation to work-family conflict (Christiaens & Bracke, 2014). This study concludes that medical care is used more by women experiencing work-to-family spillover, irrespective of their self-reported health. This observation can be explained by the medicalization hypothesis: health care use is not merely a response to health problems, but a shortcut used to manage work-family imbalance. We ponder whether this reasoning can be extended to the health care consumption of other vulnerable socioeconomic groups, specifically the unemployed and those in insecure jobs. In view of the ongoing economic crisis, the relation between unemployment, job insecurity and mental health care use seems of special relevance. We examine the mental health care use of the unemployed and people in insecure employment from both a biomedical and a medicalization perspective and investigate whether their social condition contributes to under or over-consumption.

The biomedical model and the need hypothesis

The biomedical model of illness emphasises the importance of symptoms and the subsequent use of medical resources (Wade & Halligan, 2004). This perspective considers health care use to be need based: it is expected that people with a mental health problem seek and receive medical help. As a result, the health care sector strives for vertical equity, which exists when people with greater need are provided with greater resources (Starfield, 2011). Given that the unemployed and the employed with job insecurity seem to have more mental health problems, and consequently a higher need for care, they seek and receive more professional care. A biomedical perspective leads us to expect that *higher professional care seeking by the*

unemployed and the employed with job insecurity is related to their greater need for care or their worse mental health status. Following Christiaens and Bracke (2014), we term this *the need hypothesis* (Hypothesis 1.1).

- **Hypothesis 1.1** The *need hypothesis* expects that higher professional care seeking by the unemployed and the employed with job insecurity is related to their greater need for care or their worse mental health status.

However, population surveys have indicated that the relation between mental health status and care use is not that straightforward: a substantial number of people in need do not use health services for mental problems (Alonso et al., 2007). As a result, concerns have been raised about the possibly high levels of unmet need. The unemployed can also be considered a risk group for unmet need (Alonso et al., 2007; Gouwy, 2008), because they frequently perceive greater thresholds to seeking mental health care, such as financial barriers. Consequently, we come to *an unmet need hypothesis,* which states that *the unemployed have a lower probability of mental health care use compared with the employed, irrespective of mental health* (Hypothesis 1.2). This hypothesis is basically an extension of the need hypothesis, in that it assumes all professional care use is need driven, but not all need for care is consumed. Societal arrangements can act either as barriers or facilitators, but mental health care use as such is not considered problematic.

- **Hypothesis 1.2** The *unmet need hypothesis* states that the unemployed have a lower probability of mental health care use compared with the employed, irrespective of mental health.

The medicalization hypothesis

Some social researchers use the phrase ‘medicalization of unemployment’ (Holmqvist, 2009). Medicalization describes a process by which non-medical problems are defined and treated as medical problems (Conrad, 1992). Some examples of medicalized deviance and natural life processes are respectively, hyperactivity in children, alcoholism and sexuality, childbirth, and menopause. Recently, it is also often suggested that every minor mood fluctuation can and should be remedied by psychotropic drugs, and consequently medical therapies are increasingly being promoted to treat milder forms of depression (Saddichha, 2010). Accordingly, feelings of uncertainty related to job insecurity might be treated by medical professionals, medication use or both. In the case of unemployment, researchers have already

warned that health professionals may isolate unemployment from its social roots by considering it as a personal characteristic rather than a social process that influences the risk factors for illness (Miles, 1987). In addition, due to medicalization and individualisation processes, unemployment is increasingly being seen as the result of personal trouble or disability (Holmqvist, 2009) and can be viewed as a departure from the norm, a type of disease producing a low motivation to work and an individually caused predicament (Janlert, 1997). There are indeed a few empirical indications of higher care and antidepressant use amongst those with precarious work, irrespective of their (mental) health (Bijl & Ravelli, 2000; Rugulies et al., 2010), however, these studies do not link their results to processes of medicalization. Based on this theoretical framework, we expect that *job insecurity and unemployment are associated with increased health care and antidepressant use, irrespective of actual mental health* (Hypothesis 1.3).

Gender differences

Generally, women use mental health care more than men, irrespective of their mental health (Gouwy, 2008). The most common explanation for this is the gender-role theory, which postulates that men and women are socialised in different roles (Chodorow, 2002). While women are traditionally socialised in care-giving roles and expected to be emotional and dependent, men are more reluctant to seek help because of characteristics related to the traditional male identity such as autonomy and being emotionally independent (Moller-Leimkuhler, 2002).

Research also showed a gender bias in the prescription of psychotropic drugs (Simoni-Wastila, 1998). Even after controlling for need and socio-economic characteristics, visits to a physician by women are more likely to result in the prescription of antidepressants. In addition, women may be more vulnerable to medicalization for a variety of biological, social and psychological reasons (Riessman, 1983). For example, women tend to be the primary carers in the family, and thus have a greater involvement with health matters (O'Brien, Hunt, & Hart, 2005). Alternatively, the use of medical treatment may be a more common coping mechanism among women, because society gives women more freedom to express feelings, perceive emotional problems and seek medical care for them (Schofield, Connell, Walker, Wood, & Butland, 2000). In sum, we expect that *women are more likely to seek help from*

mental health care providers and to take antidepressants in response to unemployment and job insecurity, irrespective of their mental health.

Confounding factors

Before testing our hypotheses, we must draw attention to some possible confounding factors. Using data from the Eurobarometer results in some problems concerning the temporal order, over and above the fact that the survey has a cross-sectional design. Questions concerning health care and antidepressant use refer to the 12 months preceding the interview, while the period of reference for the experience of depressive feelings is the preceding four weeks. In addition, the main independent variables – employment status and job insecurity – indicate the situation of the respondent at the time of the interview. As a result, we do not know which part of the associations result from processes of causation or which from reverse causation. This is standard practice in most cross-sectional studies (Christiaens & Bracke, 2014; Virtanen et al., 2006), but it contributes to blurring of the time ordering of the main variables. In various ways, we have attempted to take account of possible selection biases and problems of endogeneity.

First, pessimistic and anxious individuals will perceive their job as more threatened, but at the same time they will report worse mental health and have a greater probability of using care (Caroli & Godared, 2013). This perception bias is partly taken into account by considering their actual mental health status.

Second, selection is likely to be a concern if unhealthy individuals (in our study individuals with mental health problems) are more likely to be unemployed. As we distinguish those who are inactive due to illness or disability from the unemployed, we can partially take this into account, but not all selection bias is corrected in this way. Even if initial job-loss is not caused by health problems, selection bias can occur because unemployment may have a detrimental impact on health (Paul & Moser, 2009), and subsequently, the unhealthy unemployed are less likely to find a new job compared with the more healthy unemployed (Stewart, 2001).

Third, to partially control for potential between-country differences in selection bias related to between-country variation in the proportions of the unemployed and the employed with job insecurity, the models are estimated taking into account the per country proportion of the

unemployed and of the employed with job insecurity. Unemployment is also the most consistent predictor of job insecurity (Dixon, Fullerton, & Robertson, 2013; Esser & Olsen, 2012), which makes it particularly relevant to control for employment status proportions. In addition, we introduce interaction-effects between the individual employment status and the national proportion of the unemployed, because in line with previous research (Clark et al., 2010), we can expect that in countries with low unemployment, unemployment is less randomly distributed and as a result will be more frequently considered a personal characteristic or a direct or indirect consequence of health selection. Unemployment will be more stigmatising, different to the norm and treated as an individualised problem (Clark et al., 2010), which can be triggers for medicalization.

Methods

Sample data

We use data from the Eurobarometer 345 (2010), which gathered information on a general population aged 15 and above in all 27 member states of the European Union (n_{men} = 12 275; n_{women} = 14 525). The basic sample design used in all countries is a multi-stage, random sample of individuals within households within an area. Interviews were conducted face-to-face in the national language. To ensure nationally-representative samples, post-stratification weights are applied to restore specific town size, age, and gender distributions for the general population in each country, using the most recent census data. Based on Frohlich's study (2001), we do not weight the samples according to population size[9]. We use a subsample limited to male (n = 8 628) and female (n = 10 168) respondents of working age (20-65 years old). Descriptive statistics are provided in Table 11 and Table 12.

Measurements

Antidepressant use. Respondents were asked whether they had taken any antidepressants. We have distinguished between users (=1) and non-users (=0).

[9] Frohlich and colleagues (2001), they conclude that when the aggregated units, make sense, theoretically as units, in our case countries, it is more appropriate to carry out the analyses without weighting by the size of the unities. Unweighted analyses yield estimations that are more valid. Frohlich and colleagues (2001) also indicate that they know of no studies showing that the size of the population or a country, in itself affects the health status and need for health care services of the population. Hence, they state that it is not appropriate to weight analyses by the size of the population. However, they recognize that other factors, highly correlated with population size – such as the supply of services, or travel distance to access them– may affect utilization. In such cases, it is important to take these variables of supply into account by including them in the model. In our model, we accordingly also control for some supply factors, for example the number of GPs and psychiatrists.

Mental health care use. Our study focuses on medical professionals who are allowed to prescribe medication. Based on the question whether they had sought help for a psychological or emotional health problem, two dummies were constructed: contacting a general practitioner (GP) and a psychiatrist (1 = yes; 0 = no).

Table 11: Descriptives for the variables by gender (men N = 8 628; women N = 10 168)[(a)]

	Men	Women [(b)]	
Antidepressant use (%)	5,2	9,4	***
GP consultation (%)	9,1	12,8	***
Psychiatrist consultation (%)	1,5	1,9	*
Mental health 1-5 ($\bar{x}$, SD)	3,8(0,007)	3,7(0,007)	*
Age 20-65 ($\bar{x}$, SD)	43,4(0,137)	43,7(0,127)	
Work status (%) Unemployed	11,8	10,3	
Employed	67,2	53,9	***
Homemaker	0,9	17,3	***
Student	4,5	4,2	
Retired or unable to work because of illness	15,6	14,5	
Job insecurity (%) (1 = yes)[(c)]	30,2	28,0	**
Financial difficulties (%) (1 = yes)	38,2	42,8	***
Marital status (%)			
Married	69,9	68,3	
Single	22	16,4	***
Divorced	6,7	10,1	**
Widowed	1,5	5,1	***
Community (%) Rural	35,9	35,4	
Small urban	34,6	35,4	
Large urban	29,5	29,2	
Attitudes (%)			
Negative	26,4	22,7	***
Do not know	8,5	7,8	
Education (%) < 16 years	21,2	23,4	**
17-20 years	41,2	39,4	
> 20 years	31,6	31,3	

* p < 0,050 ** p < 0,010 *** p < 0,001.

[(a)] Initial there were 9 158 men and 10 736 women of working age. No variable contains more than approximately 2,0 % missing values, the accumulated percentage of missing values for men is 5,8% (n = 530) and for women 5,6 % (n = 568). These cases are omitted from the sample.

[(b)] Chi^2 test for categorical variables and anova-test for metric variables.

[(c)] The proportion of employed who perceive job insecurity.

Mental health is considered as a continuum and a multidimensional concept. The short 5-item version of the Mental Health Inventory (MHI-5), a subscale of the SF-36 Version 2 (Ware & Sherbourne, 1992) is used as an indicator of the need for mental health care. The scale measures depression and anxiety-related complaints. It ranges from 1 to 5, with high scores pointing to less psychological distress (good mental health) and low scores indicating more distress (poor mental health). If one or two items are missing, mean-substitution is applied. The internal reliability of the MHI-5 scale is moderate to good (Cronbach's alpha for men = 0,767; for women = 0,797). There is also evidence for its validity (Mchorney et al., 1993) and comparability across countries (Lehto-Järnstedt, 2003). The MHI-5 scale can be used to measure and compare mental health in a non-patient population (McCabe et al., 1996).

Table 12: Descriptives for mental health, mental health care use, antidepressant use and the macro variables by country

	MHI-5 (1-5)		**GP**		**Psychiatrist**		**Antidepressants**		**Unemployment**		**Job insecurity**		**GDP**	**Supply of GPs per 10,000 inhabitants**	**Supply of psychiatrists per 10,000 inhabitants**
	($\bar{x}$, SD) min-max		%		%		%		%		%				
	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men	Women	Men			
France	3,7(0,038) 1,0-5,0	4,0(0,039) 1,0-5,0	14,2	9,5	2,3	1,8	11,6	8,0	7,6	5,4	28,2	31,1	27,400	30,6	2,2
Belgium	3,7(0,039) 1,0-5,0	3,9(0,033) 1,6-5,0	15,4	9,6	2,5	1,2	9,6	6,3	11,9	8,2	21,6	16,2	29,600	29,2	1,8
The Netherlands	3,9(0,037) 1,2-5,0	4,1(0,032) 1,6-5,0	11,9	9,5	3,7	2,8	9,3	4,7	5,6	2,5	14,7	21,1	33,100	37,5	0,9
Germany	3,8(0,027) 1,4-5,0	3,8(0,029) 1,6-5,0	9,8	9,1	2,0	1,8	6,1	5,1	6,1	10,0	16,4	19,6	29,100	37,3	1,2
Italy	3,4(0,030) 1,0-5,0	3,6(0,033) 1,2-5,0	10,5	12,9	0,6	0,0	7,7	3,6	4,6	3,0	25,1	24,9	23,500	36,8	1,0
Luxembourg	3,8(0,048) 1,6-5,0	3,9(0,050) 1,0-5,0	9,5	7,3	1,1	3,3	6,3	5,3	4,2	3,1	17,0	23,4	65,400	27,7	1,2
Denmark	3,9(0,034) 1,6-5,0	4,0(0,029) 1,8-5,0	17,5	10,4	2,7	2,1	10,9	6,3	4,7	5,8	21,1	21,1	37,300	34,8	1,6
Ireland	3,8(0,032) 1,0-5,0	4,0(0,033) 1,8-5,0	14,9	6,9	0,8	0,7	6,2	4,5	7,1	15,0	30,8	32,8	36,500	31,3	0,7
Great Britain	3,7(0,036) 1,2-5,0	3,9(0,036) 1,0-5,0	18,4	8,5	1,3	1,3	14,8	6,9	6,8	7,9	19,3	27,0	30,500	27,1	1,1
Greece	3,3(0,033) 1,6-5,0	3,5(0,033) 1,2-5,0	5,6	2,1	1,1	0,3	4,5	0,9	4,8	3,9	40,5	43,3	17,100	61,3	1,5
Spain	3,7(0,036) 1,2-5,0	3,8(0,033) 1,6-5,0	15,8	9,1	3,4	1,9	11,5	5,9	12,2	20,4	20,5	30,9	20,600	37,8	0,4
Portugal	3,7(0,037) 1,4-5,0	3,8(0,034) 1,0-5,0	18,1	10,6	2,1	2,6	17,5	9,3	13,3	8,0	23,3	35,2	14,900	38,2	0,5
Finland	4,0(0,035) 1,2-5,0	4,1(0,034) 2,2-5,0	4,5	3,2	3,2	2,5	9,3	5,4	6,5	7,3	15,3	14,4	30,600	27,2	2,2
Sweden	4,0(0,033) 2,0-5,0	4,1(0,034) 1,6-5,0	12,2	7,0	1,5	1,9	10,7	7,3	3,2	4,3	26,3	26,2	34,500	38,0	2,0
Austria	3,7(0,034) 1,0-5,0	3,7(0,036) 1,0-5,0	12,9	10,8	1,3	0,3	10,0	8,4	1,8	6,5	16,6	12,4	31,300	47,8	1,2
Cyprus (Republic)	3,6(0,059) 1,4-5,0	3,8(0,052) 1,4-5,0	5,6	5,5	1,7	3,0	4,4	4,8	6,4	5,8	14,5	29,4	18,500	27,2	0,5
Czech Republic	3,8(0,038) 1,0-5,0	3,8(0,035) 1,2-5,0	9,0	8,7	1,2	1,5	7,0	4,2	7,2	6,9	38,2	33,6	11,400	35,8	1,2
Estonia	3,6(0,038) 1,2-5,0	3,7(0,039) 1,0-5,0	15,0	8,7	3,1	1,7	9,8	5,2	7,7	12,1	26,7	42,1	8,400	32,4	1,3
Hungary	3,6(0,039) 1,2-5,0	3,8(0,039) 1,0-5,0	10,4	5,9	4,1	1,6	11,4	4,6	7,8	7,5	35,4	35,0	8,800	28,7	0,9
Latvia	3,4(0,039) 1,0-5,0	3,5(0,036) 1,0-5,0	14,5	8,1	0,6	0,6	8,7	3,2	16,5	24,9	40,6	43,6	5,900	30,7	1,0
Lithuania	3,6(0,037) 1,2-5,0	3,6(0,040) 1,0-5,0	15,3	9,9	3,2	2,8	14,7	6,4	12,3	24,8	50,0	66,4	7,100	37,1	1,5
Malta	3,5(0,050) 1,0-5,0	3,8(0,057) 1,8-5,0	11,6	10,0	1,6	2,0	12,1	7,0	2,3	2,5	13,3	20,7	13,200	30,8	0,4
Poland	3,7(0,036) 1,0-5,0	3,7(0,039) 1,6-5,0	7,3	4,1	2,3	1,1	7,1	3,4	9,7	14,2	25,7	24,3	8,000	21,8	0,6
Slovakia	3,7(0,033) 1,4-5,0	3,9(0,030) 1,8-5,0	18,1	14,7	1,3	0,8	10,6	3,9	8,2	5,9	34,6	29,9	8,900	33,4	1,0
Slovenia	3,8(0,032) 2,0-5,0	3,9(0,034) 1,8-5,0	6,0	4,2	2,5	2,8	9,3	5,3	10,6	6,0	27,0	22,4	15,300	24,3	0,5
Bulgaria	3,6(0,038) 1,6-5,0	3,6(0,042) 1,4-5,0	4,8	2,5	0,3	0,0	3,8	2,9	11,1	14,8	30,0	31,4	3,500	36,5	0,9
Romania	3,4(0,035) 1,0-5,0	3,6(0,034) 1,2-5,0	25,3	26,0	1,7	0,9	9,1	3,7	4,5	9,6	37,9	39,9	4,200	22,2	0,4

We have merged the data from East and West Germany and from Northern Ireland and the rest of the United Kingdom.

Employment status contains five categories: unemployed (reference group), employed, homemaker, student, and retired or unable to work due to illness or disability. Those who reported being employed were asked whether they tended to agree or to disagree with the statement "Your job security is under threat" (1 = totally agree, 2 = tend to agree, 3 = tend to disagree, 4 = totally disagree). Based on the study of Rugulies (2010), we dichotomise the variable *job security* (1-2 = job insecure [0]; 3-4 = job secure [1])[10]. The unemployed and the non-employed do not have a score on this variable, as they are not in paid employment and therefore the variable job security is not relevant to them.

As possible structural thresholds for care use, we introduce *perceived financial insecurity* and the *degree of urbanisation.* The former is derived from the question: 'During the last 12 months, would you say you had difficulties paying your bills at the end of the month? And recoded to a dummy 'financial insecurity' (yes = 1/no = 0). *The degree of urbanisation* (large town [reference group], rural area or village, small or medium-sized town) can be considered as a proxy of supply, because the availability of medical professionals may vary from a large city to a more rural area (Saxena, Thornicroft, Knapp, & Whiteford, 2007).

Finally, we control for *age*, *marital status* (married [reference group], divorced, widowed, single) and *years of schooling* (0-16 [reference group], 17-19, 20 or more years). To take attitudinal barriers for mental health care into account, we measure *social distance*, which is based on the statement 'You would find it difficult talking to someone with a significant mental health problem' (yes = negative attitude, no = positive attitude [reference group], do not know). In addition, we control for some macro-variables: the *proportion of unemployed*[11] (number of unemployed/total number of respondents of working age) and the *proportion of*

[10] I have performed a contrast analysis where I have test whether the two categories that I took together (totally agree and tend to agree as well as totally disagree and tend to disagree), significantly differ on GP-consultation, psychiatrist consultation and antidepressant use, as these variables are the focus of Study 1. Following De Witte (1999), I have performed additional bivariate analyses (using pairwise Chi²-tests) to test whether the differences in GP consultations, psychiatrist consultations for mental health problems and antidepressant use significantly differ between the two pairs of categories ('totally agree' versus 'tend to agree'; 'tend to disagree' versus 'totally disagree'). The results of this additional analysis are presented in Appendix 3. Only among men, the respondents who totally disagree significantly differ in GP-consultations for mental health problems from the respondents who tend to disagree with the statement that their job security is under threat. Also with regard to antidepressant use, a significant difference is found between men who tend to agree and men who totally agree with the statement. However, the most remarkable and significant differences are between those with job security and those with job insecurity.

[11] The correlation between the unemployment proportions from Eurostat (2010) and those calculated from the Eurobarometer (2010) data are 0,84 for men and 0,79 for women.

working respondents who perceive job insecurity (those with job insecurity/total number of the employed respondents). These figures are calculated separately for men and women. The GDP and the number of GPs and psychiatrists per 10 000 inhabitants are operationalized using information from Eurostat 2010 (for GDP), the OECD 2010[12] (for GPs) and the Mental Health Atlas 2005 (for psychiatrists).

Statistical procedure[13]

First, we briefly examine the relation between unemployment/job insecurity and mental health, controlling for important determinants of mental health. Given that the respondents of the Eurobarometer are nested in countries, multilevel analyses are used (Hox, 2010)[14].

Next, to examine our hypotheses, we use multilevel logistic regression analyses (Second-order penalised quasi-likelihood). We only estimate random intercepts. In order to shed light on some mediating paths, we estimate three models: (1) a baseline model with only employment status and job security, (2) a model controlling for mental health, (3) a model also adjusted for the other control variables, and with regard to antidepressant use, (4) a model controlling for care use. All metric independent variables are grand-mean centred. To make the odds ratios comparable across the nested models, we use y-standardisation as recommended by Mood (2010). All multilevel analyses are performed in MLwiN, version 2.15. The analyses are gender differentiated, because differing mechanisms are expected in this regard. To examine whether the important relations are differ significantly for men and women, tests of interactions[15] are performed (Altman & Bland, 2003). The results can be found in Appendix 4.

[12] If this information was not available, then information from the OECD 2009 or 2008 was used.

[13] Second-order penalised quasi-likelihood (PQL) is used instead of first-order marginal quasi-likelihood (MQL). Second-order PQL provides more accurate estimates compared with first-order MQL, because MQL uses the current values of the fixed part only, while PQL improves on that by using the current values of the fixed part plus the residuals (Hox, 2010).

[14] Given that the respondents of the Eurobarometer are nested in countries, the individual observations are not completely independent, as respondents from the same country tend to be more similar to each other (Hox, 2010). As a result, the assumption of independence of the observations, on which standard statistical tests heavily lean, would be violated. Therefore, it is important to use multilevel analyses to take into account this clustering in countries. In addition, our models contain variables at different levels, as we also control for some country variables. Multilevel models are also designed to analyze variables from different levels simultaneously, using a statistical model that properly includes the various dependencies (Hox, 2010).

[15] If the estimates are E1 and E2 with standard errors SE(E1) and SE(E2), then the difference d = E1-E2 has the standard error SE(d) = v[SE(E1)2 + SE(E2)2], with z = d/SE, as the test of interaction.

Because job security is a factor that is only applicable to the employed, it is a conditionally relevant variable. We examine whether, compared to the unemployed, the employed have a higher or lower score on the mental health scale and a higher or lower likelihood to use mental health care and antidepressants, and whether job security modifies the association between employment and the dependent variables. To do this we base our analyses on the method 'internal interaction-effects' used by Ross and Mirowsky (1992), which in turn is derived from the Equations of Cohen (1968)[16].

We rely on the baseline model illustrated in Equation 1:

$$(1)\ \mathrm{MH} = b_0 + b_1 N + [b_2 + b_3(S - \overline{S_E})] * E$$

where mental health (MH) is regressed on employment status – the dummies employment (E) and non-employment (N) – and job security (S). To clarify, although there are five categories in the actual model, in this example the categorical variable 'employment status' is restricted to three categories in the above-mentioned equation: the employed, the unemployed (reference category) and the non-employed. As result, employment status consists of two dummies: (E) *employed* [1] versus unemployed/non-employed [0], and (N) *non-employed* [1] versus employed/unemployed [0]. To compare the employed with the unemployed, while simultaneously considering the effects of job security, job security is measured in deviations from the mean for all employed respondents ($\bar{x}_{men}$ = 0,70: 0-0,70 = -0,70 = job insecure and 1-0,70 = 0,30 = job secure; $\bar{x}_{women}$ = 0,72: -0,72 = job insecure and 0,28 = job secure).

Note that the intercept (b_0) represents the average mental health of the unemployed, as the unemployed are the reference category, which means that they have a code 0 on the dummy employment (E) and non-employment (N) (Equation 2).

$$(2)\ \mathrm{MH} = b_0 + b_1 * 0 + [b_2 + b_3(S - \overline{S_E})] * 0$$

[16] We have to note that in practice, average job security is not a possible category for the respondents in our study, as job security is measured by a categorical variable with score 1 referring to job security and 0 to job insecurity. We are aware that conceptually taking the average score on this dummy is not the same as referring to the employed with an average job (in terms of job security) or the employed in general, however, mathematically it is. Therefore, because we want to estimate the difference in mental health and mental health care use between the unemployed and the employed in general (for all the employed, whether they perceive job security or not) in the same model in which we also estimate the difference between the unemployed and the employed with job security on the one hand and between the unemployed and the employed with job insecurity on the other hand, we use the method of Ross and Mirowsky (1992), by measuring job security in deviations from the mean for all employed respondents.

The expression in the first set of brackets in Equation 3 represents the mental health predicted for those who are non-employed. For the unemployed and the non-employed everything in the second set of brackets is multiplied with E = 0 (Equation 2 and 3).

(3) $\mathrm{MH} = [b_0 + b_1 * 1] + [b_2 + b_3(S - \overline{S_E})] * 0$

For the employed, everything enclosed in the second set of brackets in Equation 4 is multiplied by E = 1. The expression between those brackets represents the increment or decrement in mental health that is associated with employment. This is the difference in mental health status between those with jobs and those without.

(4) $\mathrm{MH} = [b_0 + b_1 * 0] + [b_2 + b_3(S - \overline{S_E})] * 1$

On average, the difference equals b_2 because the mean deviation from the average job security equals zero. Here b_2 represents the increment or decrement in mental health associated with employment in a job with average job security, compared with the unemployed: Equation 5.

(5) $\mathrm{MH} = b_0 + b_1 * 0 + [b_2 + b_3 * 0] * 1$

Equation 6 and 7 show how the difference in mental health between the employed and the unemployed, depends on job security (= 1) versus insecurity (= 0).

(6) $\mathrm{MH} = b_0 + b_1 * 0 + [b_2 + b_3(1 - \overline{S_E})] * 1$

(7) $\mathrm{MH} = b_0 + b_1 * 0 + [b_2 + b_3(0 - \overline{S_E})] * 1$

Results

The relations between employment, job security and mental health

The descriptive results (not presented in the tables) show that the total association between employment and mental health is positive: the employed are, on average, less. The difference in means between the employed and the unemployed is 0,339 for men (3,869 - 3,530) and 0,240 for women (3,728 – 3,488). The coefficient of the employment variable in Table 13 (Model 1) represents the association for a job with average security, defined as a job with deviations of zero from the average job security. The coefficients of 0,339 for men and 0,240 for women are the same as the mean differences given above, within rounding error. The total association between employment and mental health increases significantly with job security (b_{men} = 0,258[0,019], b_{women} = 0,290[0,021]): when the employed perceive job security, they are even more likely to have good mental health. Among employed men, those who perceive

job security have a mean mental health score of 3,947 ($b_0 + b_1 * (1) + b_2(S - \overline{S_E}) * 1$ =3,530 + (0,339*1) + (0,259*(0,30)*1)) and those with job insecurity 3,688. The mean mental health score for employed women with job security is 3,809 and for those with job insecurity 3,519.

The adjusted difference between the employed in a job with an average level of insecurity and the unemployed is 0,222 for men and 0,129 for women (Model 2, Table 13), compared with the unadjusted difference of respectively 0,339 and 0,290 (baseline model). Although adjustment reduces the positive associations between employment and mental health, they remain significant. Also the effect of job security among the employed reduces slightly, but again remains significant. The attenuation of the relation between employment and mental health can be partly explained by the differences in financial difficulties: the unemployed perceive more financial insecurity (not presented), which is negatively associated with good mental health. In addition, we see that only for men, the positive relation between employment and mental health is stronger in countries with higher proportions of unemployment.

The relations between employment, job security, and mental health care and antidepressant use

The baseline models of Table 14 (men) and Table 15 (women), show that the unemployed are more likely to contact a GP (OR_{men} = 1/0,823; OR_{women} = 1/0,796) or a psychiatrist (1/0,491; 1/0,534) and to use antidepressants (1/0,564; 1/0.670). Among the employed, those with job security have a lower likelihood of contacting a GP (0,761; 0,793) and using antidepressants (0,735; 0,710). The analyses imply that the difference in GP-consultations and antidepressant use between the unemployed and the employed decreases with job insecurity.

To examine whether we can explain these differences in health care and antidepressant use by differences in the need for care, we add mental health to the baseline model (Model 2), and introduce the other control variables (Model 3). The adjusted difference between the employed and the unemployed in GP-consultations is no longer significant. The higher general care use of the unemployed can therefore mainly be explained by their higher need for care (Model 2) and also partly by their socioeconomic status (Model 3).

Table 13: Mental health regressed on employment, job insecurity and control variables, for men and women

	Mental health (MHI-5)											
	Men						Women					
	Model 1			Model 2[(a)]			Model 1			Model 2[(a)]		
	b	(SE)		b	(SE)		b	(SE)		b	(SE)	
Constant	3,530	(0,036)	***	3,759	(0,035)	***	3,488	(0,036)	***	3,693	(0,035)	***
Work status (ref. Unemployed)												
Employed	0,339	(0,022)	***	0,222	(0,023)	***	0,240	(0,024)	***	0,129	(0,023)	***
Homemaker	0,080	(0,077)		0,025	(0,075)		0,166	(0,028)	***	0,096	(0,028)	***
Student	0,327	(0,039)	***	0,238	(0,042)	***	0,283	(0,040)	***	0,247	(0,043)	***
Retired or unable to work due to illness	0,209	(0,027)	***	0,147	(0,030)	***	0,065	(0,028)	*	0,076	(0,030)	*
Job security[(b)]	0,258	(0,019)	***	0,192	(0,019)	***	0,290	(0,021)	***	0,205	(0,020)	***
Financial difficulties (ref. no difficulties)				-0,296	(0,015)	***				-0,338	(0,015)	***
GDP				0,004	(0,002)	*				0,003	(0,002)	
Proportion job insecurity				-0,001	(0,002)					-0,002	(0,003)	
Proportion unemployment				-0,003	(0,004)					0,008	(0,007)	
Employed x proportion unemployed				0,001	(0,003)					0,003	(0,004)	
Variance												
Individual	0,412	(0,006)	***	0,388	(0,006)	***	0,477	(0,007)	***	0,439	(0,006)	***
Country	0,024	(0,007)	***	0,010	(0,003)	***	0,022	(0,006)	***	0,009	(0,003)	**
ρ[(c)]	0,055			0,025			0,044			0,021		
-2LL	16 904,403			16 373,445			21 107,718			20 549,175		

* p < 0,050 ** p < 0,010 *** p < 0,001; N individual men = 8 628 and women = 10 168; N country = 27.

(a) Also controlled for age, marital status, degree of urbanisation, social distance, years of schooling and the interaction effectsbetween the other categories of work status (versus unemployed) and the proportion of unemployed.

(b) Measured as deviations from the mean for employed people.

(c) Intra-class correlation = σ^2 country/(σ^2 country + σ^2 individual).

ρ null model men = 0,063 and women = 0,050.

Although adjustment reduces the association between employment, and psychiatrist consultations and antidepressant use, it remains significant for both men and women. The unemployed are more likely to contact a psychiatrist (OR_{men} = 1/0,604; OR_{women} = 0,687) and to use antidepressants (1/0,789; 1/0,843), irrespective of their actual mental health and the other control variables (Model 3). For men, the difference in antidepressant use between the employed and unemployed remains significant, also after controlling for mental health care use (Model 4, Table 14).

With regard to job insecurity, the higher antidepressant consumption of employed men with job insecurity can be mainly explained by their worse mental health (Model 2, Table 14), while the higher care use of employed women with job insecurity can be ascribed to their higher need for care (Model 2, Table 15). However, not all associations with job security can be explained by differences in mental health. Among employed men, those in secure jobs (OR = 0,885 [Model 3, Table 14]) have a lower likelihood of consulting a GP, irrespective of their mental health. In addition, women employed in a job with a high level of insecurity are more likely to use antidepressants (OR = 1/0,890 [Model 3, Table 15]), also when taking mental health into account. This heightened consumption overlaps with their higher use of health care (Model 4, Table 15).

In addition we have performed a sensitivity analysis, by using the country fixed-effect approach, thereby including country dummies (Wooldridge, 2010). These results (which can be found in Appendix 5) are close to our multilevel results. Additionally, we have controlled for the availability of GPs and psychiatrists, but the results show no significant impact on the mental health care use of either men or women and the other results are similar in a model with and without these control variables.

Table 14: Mental health care and antidepressant use regressed on employment, job insecurity and control variables, for men

Men	GP			Psychiatrist			Antidepressant use			
	Model 1	Model 2	Model 3[(a)]	Model 1	Model 2	Model 3[(a)]	Model 1	Model 2	Model 3[(a)]	Model 4[(a)]
	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR
Constant	0,315 ***	0,248 ***	0,250 ***	0,176 ***	0,127 ***	0,092 ***	0,298 ***	0,192 ***	0,180 ***	0,152 ***
Work status (ref, Unemployed)										
Employed	0,823 ***	1,012	1,037	0,491 ***	0,630 ***	0,604 ***	0,564 ***	0,764 ***	0,789 **	0,822 *
Homemaker	1,068	1,154	1,160	0,961	1,062	1,211	1,303	1,523 *	1,577 **	1,572 *
Student	0,742 *	0,893	0,935	0,485 *	0,587	0,570	0,412 ***	0,523 **	0,521 **	0,555 *
Retired or unable to work because of illness	1,229 **	1,393 ***	1,348 **	1,089	1,211	1,600 *	1,174 *	1,423 ***	1,519 ***	1,310 **
Job security[(b)]	0,761 ***	0,871 **	0,885 *	0,942	1,111	1,114	0,735 ***	0,894	0,915	0,907
Mental health		0,598 ***	0,608 ***		0,528 ***	0,525 ***		0,451 ***	0,463 ***	0,551 ***
Degree of urbanisation (ref, large urban)										
Rural			0,961			1,117			0,872 *	0,826 **
Small urban			0,999			0,979			0,892	0,879
Financial difficulties (ref, no difficulties)			1,115 *			1,182			1,226 **	1,162 *
GDP			1,004			1,014 *			1,012 *	1,009 *
Proportion job insecurity			1,001			1,003			0,993	0,992
Proportion unemployment			0,991			0,992			0,996	0,998
Employed x proportion unemployment			1,000			0,982			1,000	1,002
GP consultation										2,919 ***
Psychiatrist consultation										6,355 ***
Variance										
Country	0,225 (0,074)	0,277 (0,089)	0,272 (0,088)	0,122 (0,095)	0,400 (0,182)	0,179 (0,116)	0,090 (0,043)	0,039 (0,106)	0,189 (0,073)	0,109 (0,056)
VPC[(c)]	0,064	0,078	0,076	0,036	0,108	0,052	0,027	0,086	0,054	0,032

* p < 0,050 ** p < 0,010 *** p < 0,001; N individual men = 8 628; N country = 27,

[(a)] Also controlled for age, marital status, social distance, and years of schooling and the interaction effects between the other categories of work status and the proportion of unemployed,

[(b)] Measured as deviations from the mean for employed people,

[(c)] Variance at higher level (country) = σ^2 country/ (σ^2 country + 3,29),

VPC null model GP = 0,062; Psychiatrist = 0,036; Antidepressants = 0,025,

Table 15: Mental health care and antidepressant use regressed on employment, job insecurity and control variables, for women

Women	**GP**			**Psychiatrist**			**Antidepressant use**			
	Model 1	Model 2	Model 3[(a)]	Model 1	Model 2	Model 3[(a)]	Model 1	Model 2	Model 3[(a)]	Model 4[(a)]
	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR
Constant	0,402 ***	0,329 ***	0,333 ***	0,188 ***	0,130 *	0,136 ***	0,365 ***	0,255 ***	0,246 ***	0,175 ***
Work status (ref. Unemployed)										
Employed	0,796 ***	0,933	0,954	0,534 ***	0,674 ***	0,687 **	0,670 ***	0,843 **	0,843 **	0,896
Homemaker	0,911	1,002	0,999	0,790 *	0,889	0,931	0,866 *	0,994	0,975	0,955
Student	0,733 **	0,862 *	0,851	0,605 *	0,776	0,748	0,695 ***	0,891	1,070	1,241
Retired or unable to work because of illness	1,081	1,132	1,079	0,964	1,017	1,024	1,124	1,229 **	1,040	1,021
Job security[(b)]	0,793 ***	0,931	0,942	0,806	0,991	0,987	0,707 ***	0,876 **	0,891 *	0,896
Mental health		0,577 ***	0,589 ***		0,499 ***	0,510 ***		0,459 ***	0,472 ***	0,559 ***
Degree of urbanisation (ref. large urban)										
Rural			0,980			0,898			0,915	0,941
Small urban			1,020			0,908			1,020	1,040
Financial difficulties (ref. no difficulties)			1,068			1,081			1,174 ***	1,150 **
GDP			1,007			1,004			1,007	1,004
Proportion job insecurity			1,003			0,988			0,995	0,996
Proportion unemployment			1,005			1,017			1,016	1,015
Employed x proportion unemployment			1,002			1,004			1,012	1,007
GP consultation										3,108 ***
Psychiatrist consultation										6,563 ***
Variance										
Country	0,179 (0,056)	0,239 (0,073)	0,225 (0,070)	0,154 (0,085)	0,290 (0,126)	0,202 (0,100)	0,115 (0,041)	0,250 (0,079)	0,224 (0,077)	0,133 (0,050)
VPC[(c)]	0,052	0,068	0,064	0,045	0,081	0,058	0,034	0,071	0,064	0,039

* p < 0,050 ** p < 0,010 *** p < 0,001; N individual women = 10 168; N country = 27.

[(a)] Also controlled for age, marital status, social distance, and years of schooling and the interaction effects between the other categories of work status and the proportion of unemployed.

[(b)] Measured as deviations from the mean for employed people.

[(c)] Variance at higher level (country) = σ^2 country/ (σ^2 country + 3,29).

VPC null model GP = 0.049; Psychiatrist = 0.045; Antidepressants = 0,032.

Discussion and conclusion

Before discussing the main findings, some limitations of the study should be addressed. First, as already mentioned, the Eurobarometer data has some problems concerning temporal order. As a result, we do not know which part of the associations results from processes of causation or which from reverse causation. Our findings may also be affected by selection bias and problems of endogeneity, however, we have attempted to correct for these in a number of ways. Second, some researchers have pointed to the importance of a multidimensional approach to job insecurity (De Witte, 1999; Sverke & Hellgren, 2002). However, because the Eurobarometer contains only one item concerning job insecurity we measure this as a unidimensional phenomenon. Nevertheless, a dichotomous operationalization based on one general question is quite common in existing literature (Rugulies et al., 2010; Sverke & Hellgren, 2002). It is useful in order to capture the perception of job insecurity and may cover an overall concern about the possible termination of the "job as such" (De Witte, 1999). However, we are aware that we may lose some nuance, as the degree to which job insecurity is perceived is lost. Nevertheless, sensitivity analyses show that the results with regard to mental health, care and antidepressant use are close when we use job insecurity as a dummy or continuous variable. Third, we are not able to take the duration of (un)employment into account, although some have shown the importance of this related to mental health and care use (Virtanen et al., 2006). Fourth, the information about mental health is self-reported. Additional information regarding mental health observed by clinicians would benefit the validity of the indicator of need for care. Last, there may be some concerns about the method we use to manage the problem of incomparability of effects due to the scaling of the dependent variable, which is caused by unobserved heterogeneity. Using y-standardisation is preferred when comparing odds ratios across nested models (Mood, 2010), but it remains problematic when comparing odds ratios of different samples or groups – such as between men and women – because in this case we do not know the size of the unobserved heterogeneity (Mood, 2010). Nevertheless, even if we do not know the extent of the impact of unobserved heterogeneity unrelated to the independent variables, we always know the direction of the impact, as it can only lead to an underestimation of the effect (Wooldridge, 2010). In addition, as a form of sensitivity analysis, we carry out our analyses again, but with men and women together. The results are close to those of the gender differentiated analyses[17]. By taking both groups together and using interaction effects, we can compare their

[17] The results of these extra analyses with men and women together can be found in Appendix 6

relations between employment status and job security on the one hand, and mental health care and antidepressant use on the other. In this way, we partly avoid the issue of unobserved heterogeneity related to comparing estimates across groups/samples.

Regardless of these limitations, our study does offer some important findings. First, positive associations are observed between employment and mental health, and between job security and mental health, which is in line with previous research (De Witte, 1999; Paul & Moser, 2009). Our results also show that the difference in mental health between the unemployed and the employed decreases with job insecurity, but remains significant. Moreover, the difference in mental health is larger between the employed with and without job insecurity than between the unemployed and the employed with job insecurity. The unemployed and the employed with job insecurity not only have worse mental health and consequently a higher need for care, but also report a higher use of mental health care and antidepressants.

The positive relation between unemployment and GP-consultations can be ascribed completely to differences in the need for care. Although the unemployed are often considered a risk group perceiving greater barriers to seeking mental health care (Alonso et al., 2007; Gouwy, 2008), we find no evidence for greater unmet need, as they do not have a lower likelihood of contacting a GP. In most European countries, the principle 'equal treatment for equal need' prevails in primary care, and in some countries even a 'pro-poor discrimination' predominates (van Doorslaer & Jones, 2004), which can possibly explain our findings. In addition, the higher general mental health care use of employed women who perceive job insecurity and the higher antidepressant use of employed men with job insecurity can be attributed to their worse mental health. These findings are in line with the need hypothesis (Wade & Halligan, 2004).

However, most of our findings concerning unemployment and medical care use and some of the results with regard to job insecurity are somewhat in contrast with the need hypothesis. The unemployed are more likely to consult a psychiatrist and to use antidepressants than would be expected based on their mental health. Employed women who perceive job insecurity are also more likely to use antidepressants, irrespective of their need for care. However, this heightened consumption totally overlaps with their higher health care use. In addition, the difference in GP-consultations between employed men with and without job insecurity can also only be partly explained by differences in mental health. Two explanations

are possible for these findings: the selection hypothesis or the medicalization hypothesis. The former would suggest that individuals who seek professional help and take antidepressants for mental health problems have a greater likelihood of becoming unemployed and therefore report more job insecurity or have actually lost their job. However, we have tried to estimate the scope of these selection effects. Alternatively, based on the medicalization hypothesis, the findings can be interpreted as using medical care and/or antidepressants not merely as a response to mental health problems, but as a way to cope with the situation of being unemployed or having a job with a high level of insecurity. Stress and other negative feelings resulting from unemployment or job insecurity could lead to isolated non-specific symptoms, which are reclassified as diseases for which medical treatment is sought and for which antidepressants are prescribed (Holmqvist, 2009).

In contrast to some previous studies (Clark et al., 2010), we do not find that the unemployed have poorer mental health and medicalise their unemployment more when overall unemployment is less prevalent. Several explanations can be suggested. Not only the context but also the period and changes to the context may be important (Catalano, Dooley, & Jackson, 1985). The European data used here is from 2010 and at this time most countries in Europe were affected by the economic crisis, which was characterised by increasing employment. In almost all countries, the unemployment rate increased between 2006 and 2010 (Eurofound, 2013). Further, in countries with a low unemployment rate, unemployment was still more widespread than in the period before the crisis. We can expect that rising unemployment rates will diminish the psychological cost of being unemployed, as the stigma associated with unemployment and living on welfare benefits decrease. However, there is also an opposite impact of increasing unemployment on health, which can neutralise this effect. As unemployment increases, periods of unemployment become longer and the prospects of finding employment become far worse (Oesch & Lipps, 2013). Another explanation could be that the country-level is too broad to be used as a context for comparison. Using regional unemployment could be a better alternative. However, research has also found that the relation between unemployment and well-being does not vary across regional unemployment rates (Oesch & Lipps, 2013). As alternatives, there are many other types of reference groups, such as non-geographical social groups (Wilkinson & Pickett, 2007). It could also be that the individuals choose their reference groups wisely, for instance, unemployed do not engage in 'unhealthy' upward comparisons (Prag, Mills, & Wittek, 2014) by comparing themselves with

the employed, because they would then feel more stigmatised, less capable and more apart from the norm, which would be detrimental to their well-being.

Finally, our results do not confirm the expectation that women are more vulnerable to medicalization. Unemployed men actually use antidepressants more frequently than women, even after taking their mental health and care use into account. An explanation could be that although there has been a shift from male breadwinners towards dual-earner families, men's life has traditionally been more centred around paid work, while women were often more oriented towards the family. Our results confirm that male unemployment is more strongly related to poor mental health. Consequently, men may feel more dependent on employment and as a result will suffer more from becoming unemployed, while women may be more vulnerable to issues concerning the family (Christiaens & Bracke, 2014). It could also be that medical professionals consider male unemployment more as an individual issue resulting from personal problems, and therefore more often prescribe antidepressants.

In conclusion, our study shows that some of the professional care use for emotional health problems and antidepressant use among the unemployed and those in insecure jobs is associated with their worse mental health. In addition, medicalization processes contribute to higher specialised care and antidepressant use among the unemployed, irrespective of their mental health. This is evident in increased antidepressant consumption among women in insecure jobs and more GP-consultations among their male counterparts. In previous research, there is a lack of attention paid to asymptomatic and over-consumption of medical care, as the dominant focus is on under-consumption and unmet need. In this study, we have tried to measure over-consumption based on mental health as an indication of the need for care. However, we are aware that self-reported mental health does not capture everything and that this is certainly an issue for discussion. Nevertheless, by empirically testing the medicalization theory in a quantitative way in a general European population and linking it to the dominant biomedical model, we attempt to present a more nuanced picture of medical care and antidepressant use related to unemployment and job insecurity. In this way, we also hope to move away from the initially 'black or white' version of the medicalization theory (Williams & Calnan, 1996). This originally primarily criticised the increasing control function of medical professionals and the power of the pharmaceutical industry, without empirically testing its basic propositions (Christiaens & van Teijlingen, 2009).

Our study confirms that the dichotomy based on employment status is still relevant in research about mental health and care use, but that it is also important to recognise differences within the group of the employed (Virtanen et al., 2006), particularly between those with and without job insecurity. In post-industrial economies and especially in times of economic instability, researchers and policy makers need to pay particular attention to the employed in insecure jobs (Dixon et al., 2013). Our results show that in addition to the unemployed, the employed in insecure jobs (who are greater in number men: 11.8% unemployed and 20.3% job insecure; women respectively 10.3% and 15.1%), should also be considered as a risk group for mental health problems. Not only the actual rise of unemployment, but also the fear generated by the increased possibility of unemployment has increased the frequency of mental health problems and consequently the demand for care in times of economic recession.

CHAPTER 8

Study 2. The Social Norm of Unemployment in Relation to Mental Health and Medical Care Use: The Role of Regional Unemployment Level and of Displaced Workers

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The relations between unemployment, mental health (care), and medication use among 50–65 year old men (N = 11 789) and women (N = 15 118) are studied in Europe. Inspired by the social norm theory of unemployment, the relevance of regional unemployment levels and workplace closure are explored, using multilevel analyses of data from the Survey of Health, Ageing and Retirement. In line with the social norm theory, the results show that – only for men – displaced workers are less depressed and use less medication than the non-displaced unemployed. However, they report more depressive symptoms than the employed, which supports the causal effect of unemployment on mental health. Non-displaced unemployed men are also more likely to consume medication than the displaced unemployed. In addition, using regional unemployment as a proxy for the social norm of unemployment can be questioned when studying mental health effects, as it seems to be a stronger measurement of Labor-market conditions than of the social norm of unemployment, especially during a recession.

Introduction

The recent economic crisis, which started in 2007, has been characterized by rising unemployment (Eurofound, 2013). In particular, the group of displaced workers (i.e. those who have lost their job due to a plant or business closures) has increased. Concerns have been raised about an increase in mental health problems and the demand for care. Research has consistently related unemployment to worse mental health (Paul & Moser, 2009) and a greater use of health care and psychotropic drugs (Jin et al., 1995; Rugulies et al., 2010), even after taking people's current mental health into account (Buffel et al., 2015a, 2015b). However, the intensity of these mental health consequences may vary, as unemployment can be experienced differently in an area with a low level of overall unemployment and one with a high level. The economic recession not only makes this topic highly relevant, but also offers a good opportunity to test the social norm theory of unemployment (i.e. that people experience unemployment in a more individualised way when they live in circumstances where unemployment is less common). The impact of the crisis has differed strongly between and within countries, as reflected in the large variance in national and regional unemployment rates (Eurostat, 2014). Based on the social norm theory, there can be asked whether unemployment hurts less when it is more common, because the unemployment level could be considered an indirect indication of the degree of adherence to or representation of the norm of unemployment (Clark et al., 2010; Clark, 2003). Aggregate unemployment may also be related to the well-being of the employed, but in the inverse direction. In a context of high unemployment, the employed will experience more job insecurity and maybe even feelings of guilt towards those who lost their job. Additionally, high unemployment rates may limit workers' bargaining power, and force workers to accept less desirable employment conditions (Benach et al., 2014). In sum, both processes can shrink the health gap between the unemployed and the employed.

Studies about the social norm of unemployment have mainly used very general well-being measurements as outcomes, such as life satisfaction and happiness (Clark, 2003; Oesch & Lipps, 2013; Shields et al., 2009; Stam et al., 2015; Winkelmann, 2014). However, as the social norm theory deals with issues such as the stigmatization, normalization, self-blame, social exclusion and (de)individualization of the unemployed, it is surprising that this has not been previously related to specific mental health problems such as depression, and the utilization of mental health services.

This study tests the social norm effect of unemployment on mental health, as well as on medication and mental health care use of the unemployed. This is carried out in two ways. First, by exploring whether the relation between employment status and mental health and care use is weaker in regions with higher overall unemployment rates. Although the most commonly used method, this has recently been questioned by some researchers (Stam et al., 2015), who have encouraged the development of alternative approaches. Therefore, second, the logic of the social norm theory is applied to the difference between the displaced unemployed and the non-displaced unemployed. Typical characteristics of the displaced unemployed are that they have lost their job together with a group of others and that their unemployment is clearly structural. In addition, using a displaced worker approach also has methodological advantages, which are explained later.

The majority of studies cover only one or two countries (Australia (Shields et al., 2009), Germany (Clark et al., 2010; Oesch & Lipps, 2013; Schwarz, 2012; Winkelmann, 2014), Switzerland (Oesch & Lipps, 2013) and the UK (Clark, 2003)). By using data from the fourth wave of the Survey of Health, Aging and Retirement in Europe (SHARE), information for 16 European countries and 97 regions for 2010–2012 after the onset of the financial crisis is available, and this allows us to distinguish within the group of the unemployed between the displaced and the non-displaced.

The research focuses on the group of over 50s who are still included in the Labor force (50–65 years old). The age of 65 is taken as maximum age as this is the legal retirement age in most European countries (Alavinia & Burdorf, 2008). They are an interesting research population for two main reasons. First, the European context is of an aging population and this group is the target of policies which envisage the enhancement of health as well as social and Labor-market participation. Second, during economic instability, people at both ends of the age spectrum are especially vulnerable to marginalisation in the Labor-market (Eurofound, 2013). When people over 50 become unemployed, the chances of them finding a new job are low (Eliason & Storrie, 2009a), which may make the impact of the social norm of unemployment even more important (Clark et al., 2010; Schwarz, 2012). The analyses are also performed separately for men and women, as it is expected that their mental health and care use are affected differently by employment status (Buffel et al., 2015a, 2015b; Clark et al., 2010; Clark, 2003; Kulik, 2000).

Background

The social norm theory

Social norms constitute a central topic in economy, social psychology and sociology. They are often used to explain or rationalise behaviors (Elster, 1989). In Lester's pioneering work (1989), he claims that norms are social, if they are shared by other people and partly sustained by their approval and disapproval. The emergence of the social norm is mostly left undefined, but its evolution depends on the behavior of societal members or "relevant others" (Clark, 2003; Fehr & Fischbacher, 2004). Social norms can prevail in a family, a peer group, an organization or even a whole society (Fehr & Fischbacher, 2004). The social norm theory derives from the idea that people are concerned with their relative standing within a group (Schwarz, 2012). How people evaluate and perceive their situation depends on how they conform to or deviate from the norms of the social reference group (Winkelmann, 2014). A large body of social research focusses on social norms and has applied the theory to a range of very diverse topics from human cooperation (Fehr & Fischbacher, 2004) to body image (Britton, Martz, Bazzini, Curtin, & Leashomb, 2006). In the sociology of work, social norms seem to play an important role, for example with regard to the age of retirement (Radl, 2012), employment commitment (Van der Wel & Halvorsen, 2015) and gendered social norms in care work (Hebson, Rubery, & Grimshaw, 2015). In the subfield of unemployment, the social norm theory can yield important insights into the relation between unemployment, mental health and health care use.

The main implication of viewing unemployment as a social norm is that the psychological impact of an individual's own unemployment will be reduced where there are high rates of unemployment in the wider Labor-market (Clark, 2003). Despite being highly relevant, only a few empirical studies (Clark, 2003; 2010) have tested the impact of the social norm on the relation between employment status and (mental) health. This is doubtless because of the difficulty of measuring the social norm of unemployment (Clark, 2003). Some studies rely on the work ethic or the social norm to work (Stam, Bieben, Verbakel, & de Graaf, 2015), which they have tried to measure in a direct way by items as 'Work is a duty towards society'. Recent research (Stam et al., 2015) using a direct measurement of the social norm to work at the country level does not support a moderation effect between unemployment and well-being. It is possible that country-level indicators do not adequately capture what exists in people's life and work environment. Research directly measuring the work norm at the

community (Lalive & Stutzer, 2004) or individual level (Winkelmann, 2014), has confirmed that the negative effect of unemployment on life satisfaction is higher in the group of unemployed relying on strong work norms. However, it can be questioned whether the norm to work is comparable with the norm of unemployment, especially among the unemployed. Being unemployed in a region where 25 per cent are unemployed compared with one where the rate is only 3 per cent, will be experienced differently in terms of individual responsibility and structural cause versus personal failure, irrespective of whether there is a strong work ethic or not in the region.

Regional unemployment rates as a proxy for the social norm of unemployment

A more common way of measuring the social norm of unemployment than the direct measurement (see above) is by referring to regional unemployment rates as a proxy of adherence to the norm of unemployment. Being unemployed in a context of high aggregate unemployment may be less stigmatising and shameful because people share a common experience (Oesch & Lipps, 2013). When the deviation from the social norm is smaller (Clark et al., 2010; Clark, 2003), the consequences for mental health and medical care use may also be lowered. In regions with high unemployment, it may be easier for the unemployed to follow their daily routine and to keep in contact with others, which may also weaken the negative effects of unemployment on mental health (Schwarz, 2012). Moreover, common negative prejudices, such as the unemployed being lazy or lacking the capacities to fit in the Labor-market, become less prominent if unemployment is widely and more randomly distributed (Schwarz, 2012). By contrast, being unemployed in regions where only a minority of others are unemployed, may create a feeling of social exclusion and trigger the process of stigmatization, which will strengthen the negative health effects. They will be more likely to be considered as responsible for their situation and individual characteristics are pointed to as the main causes of unemployment, to a greater degree than the business cycle is (Wiggan, 2012). As a result, they possibly experience more stress, self-blame, shame and other negative feelings, which could lead to isolated non-specific symptoms, for which they are pushed towards individual treatment and for which medication is sought, irrespective of the actual need for mental health care (Buffel et al., 2015a, 2015b). How problems and the causes of problems are defined, determines who or what is considered as responsible – society or the individual – and which treatments are imposed or used (Olafsdottir, 2010).

To date, however, the spillover effects of high unemployment rates on mental health, and in particularly on health care utilization by the unemployed, remain incompletely understood and the empirical evidence is not straightforward. Clark (2003) found that in British regions with high unemployment, unemployed people enjoy a relatively higher level of happiness, whereas the employed are less happy. In Germany, he only found evidence for the social norm effect among the unemployed, who have poor prospects of finding new work (Clark, 2010). In Australia, unemployed men have higher levels of life satisfaction in regions with a higher unemployment rate (Shields et al., 2009), while in Germany, only a negative effect of high regional unemployment on the well-being of the employed was observed due to a higher individual perception of job insecurity (Schwarz, 2012). Oesch and Lipps (2013) found no evidence for the social norm effect on the well-being of the unemployed in either Germany or Switzerland.

Although the use of unemployment rates as a proxy for the degree of adherence to the norm of unemployment has revealed important theoretical insights, it also has some limitations, which possibly cause these ambiguous results. The unemployment rate is also an indicator of Labor-market conditions (Oesch & Lipps, 2013), therefore the social norm effect may be countered by the insecurity of not finding new work and the increased competition in a scarce job market. In addition, using unemployment rates as a proxy for the social norm of unemployment may point to indirect evidence for a social norm effect, as it is not known whether these social norms are really internalized.

An alternative application of the social norm of unemployment: Displaced versus non-displaced unemployed

An alternative application of the social norm of unemployment is proposed because of the difficulties of the previous approach. This alternative application contributes substantively as well as methodologically to the field (Clark, 2003).Unemployment may not only be related differently to mental health depending on the context, but also depending on the characteristics of unemployment. Based on the logic behind the social norm theory (Clark et al., 2010; Clark, 2003), being unemployed because of workplace closure may be experienced in a different way to being unemployed under other circumstances. People in the former category – known as displaced workers – are characterized by a structural cause for job loss (Fallick, 1996). This type of unemployment can be considered as exogenous to the individual.

It can be perceived as a social problem rather than an individual issue, given that the unemployed person will not be the only one in the same position and they may compare themselves with colleagues who have also lost their job. As a result, they may be affected less in terms of self-blame and self-esteem (Eliason & Storrie, 2009b; Morris & Cook, 1991; Winefield et al., 1992), and the relation between unemployment and poor mental health may attenuate. Being unemployed with a clear structural cause may also reduce the perception of a personal failure that needs medical treatment. Furthermore, it is easier for the unemployed to establish social contacts and to escape from boredom if colleagues are also unemployed (Kessler et al., 1987).

The displaced worker approach has also a very important methodological advantage. The direction of causality for the negative relation between unemployment and mental health remains inadequately understood (Eliason & Storrie, 2009a). The selection hypothesis posits that the association may be because people in poor health are more likely to lose their job (Lindholm et al., 2001) or remain unemployed for longer (Stewart, 2001). By contrast, the causation hypothesis assumes that unemployment leads to deterioration in health (Schroder, 2013, 2010).

Researchers have suggested that dealing with this issue of endogeneity by using the displaced workers approach is superior to studies that do not pay attention to the reason for unemployment (Schroder, 2013; Winkelmann, 2014). In the case of exogenous unemployment, variation in unemployment is not driven by individual health or capabilities, as it can be assumed that the individual health status of a worker does not influence the closure of a company (Schroder, 2013; Strully, 2009). As a result, the possible selection bias is minimal (Schroder, 2013, 2010; Strully, 2009). Therefore, observing a negative relation between displaced workers and mental health would be strong evidence for the causation hypothesis.

A few studies have already used the displaced workers approach, mostly by performing a plant closure (case) study as a form of quasi-experiment (Browning et al., 2006; Eliason & Storrie, 2009a; Schmitz, 2011; Sullivan & von Wachter, 2009) or by taking the reason for unemployment into account in survey research (Schroder, 2013, 2010; Strully, 2009). The typical deficiencies of plant closure studies (Browning et al., 2006; Eliason & Storrie, 2009a; Morris & Cook, 1991) can be overcome by using survey data. The employed together with the

non-displaced unemployed, can be used as a control group, thereby providing a larger and more representative sample than in a case study. Moreover, the displaced workers are not restricted to a specific profession, which allows light to be shed on the unexplored situation of white-collar workers (Fallick, 1996). The current study follows the survey approach.

Hypotheses

The theoretical outlining of the social norm theory of unemployment, applied to mental health, mental health care and medication use brings us to the following two sets of hypotheses. First, based on the common way of testing the theory by using regional unemployment rates as proxies for the adherence to the norm of unemployment, it can be hypothesised that:

> **Hypothesis 2.1.a:** The negative relation between unemployment and mental health will be weaker in regions with a higher level of unemployment compared to regions with lower unemployment rates.
>
> **Hypothesis 2.1.b:** The positive relation between unemployment and medical care use will be weaker in regions with a higher level of unemployment compared to regions with lower unemployment rates.

Based on the alternative approach of the social norm theory by differentiating between the displaced and non-displaced unemployed, the following two hypotheses are formulated:

> **Hypothesis 2.2.a**: The negative relation between unemployment and mental health will be weaker for the displaced unemployed than the non-displaced unemployed.
>
> **Hypothesis 2.2.b**: The positive relation between unemployment and medical care use will be weaker for the displaced unemployed than the non-displaced unemployed.

Methods

Dataset

Data from the fourth wave of the Survey of Health, Ageing and Retirement in Europe (SHARE) is used. This was collected between 2010 and 2012 in 16 European countries (Austria, Belgium, Switzerland, Germany, Denmark, Spain, France, Italy, the Netherlands, Sweden, the Czech Republic, Poland, Estonia, Hungary, Portugal and Slovenia). The SHARE

is a multidisciplinary and cross national panel database. Details about the sampling procedure can be found elsewhere (Borsch-Supan et al., 2013), but overall it consists of probability samples, drawn from population registers or from multistage sampling. Respondents aged 50 or over and their partners were interviewed face-to-face using structured, computerized questionnaires. All the items used here were retrieved from the fourth wave, except socio-demographic data and information on wealth, which were taken from the first wave of the SHARE the respondents participated in.

A subpopulation was selected, comprising individuals between 50 and 65 years old (N = 29 814; 55,8 % women; 44,2 % men), because 65 is considered as the retirement age in most European countries (Alavinia & Burdorf, 2008). Except for wealth (see below), no variable has more than 5,7 % missing values. The accumulated percentage of missing values for men was 10,5 % and for women 9,2 %. These cases were omitted from the sample. The final sample contains information on 11 789 men and 15 118 women. For the descriptive results, see Table 16.

Measurements

For specialized mental health care use, a dummy variable *psychiatrist consultations* (1 = yes; 0 = no) was constructed, based on the question relating to whether the respondent had consulted a psychiatrist in the 12 months preceding the interview. In addition, the *number of consultations with a general practitioner* (GP) during the same period was also introduced (as a count variable), because GPs are frequently contacted for mental health issues (Gouwy et al., 2008). As the reason for consultation is not explicitly refered to in the questionnaire and GPs can also be contacted for physical complaints, this item was controlled for general health. *General health status* was measured by a single question: "How is your health in general?" with five answer categories from very good (1) to very bad (5). The respondents were also asked whether they were taking *medication for anxiety and depression* at least once a week (1 = yes; 0 = no).

Table 16: Descriptive results: mental and general health, health care and medication use, and demographic and socioeconomic factors by (un)employment status and displaced worker versus non-displaced unemployed

	Men (N = 11,789)				Women (N=15,118)			
	Employed N = 6,004	Unemployed N = 840	Displaced N = 241	Non-displaced N = 599	Employed N = 6,449	Unemployed N = 792	Displaced N = 231	Non-displaced N = 561
Mental & general health								
Depression [x, (SD)]	1,62 (1,68)	2,56 (2,22)	2,39 (1,94)	2,63 (2,32)	2,41 (2,12)	3,54 (2,60)	3,49 (2,55)	3,56 (2,62)
Yes, heavy alcohol drinking (%)	9,4	14,6	11,2	16,0	3,0	3,4	4,3	3,0
General health ($\bar{x}$, SD)	2,71 (0,98)	3,27 (1,04)	3,22 (0,99)	3,29 (1,06)	2,78 (0,99)	3,30 (1,04)	3,26 (1,05)	3,32 (1,03)
Health care & medication use								
Psychiatrist (%)	0,8	2,3	0,8	2,8	2,2	4,4	3,5	4,8
Number GPs [$\bar{x}$, (SD)]	2,61 (4,68)	3,26 (6,05)	2,96 (4,35)	3,38 (6,61)	2,99 (4,73)	4,73 (7,67)	4,62 (10,47)	4,77 (6,18)
Medication (%)	2,1	4,0	1,7	5,0	5,1	9,8	10,0	9,8
Demographic & socioeconomic factors								
Age (%)								
50–54	37,3	32,7	34,4	32,1	44,4	40,3	45,5	38,1
55–59	41,5	47,1	44,0	48,4	39,6	43,6	40,7	44,7
60–65	21,1	20,1	21,6	19,5	16,0	16,2	13,9	17,1
Having a partner (%)	85,3	71,4	76,3	69,4	75,5	67,8	71,9	66,1
Degree of urbanisation (%)								
Large/medium city	40,0	41,3	31,5	45,2	42,6	44,8	44,6	44,9
Small city	24,4	26,6	23,7	25,0	23,8	27,0	23,8	28,3
Rural or village	35,7	34,0	44,8	29,7	33,5	28,2	31,6	26,7
Having a migratory status (%)	8,4	14,9	13,7	15,4	9,9	14,5	12,6	15,3
Household wealth ($\bar{x}$)	335,504,30	152,497,60	121,864,00	164,822,70	297,272,30	153,820,60	121,719,00	167,038,90
Education (%)								
Lower	23,1	41,4	45,6	39,7	22,5	44,4	41,6	45,6
Medium	47,6	43,8	41,9	44,6	45,5	38,9	42,0	37,6
Higher	29,3	14,8	12,4	15,7	32,0	16,7	16,5	16,8

The SHARE enables the degree of distress to be taken into account by gender, as it provides gender-specific indicators of mental health. Women suffer more from anxiety and depressive disorders, while men suffer more from impulsive and addictive problems, such as alcohol consumption (Vesga-Lopez et al., 2008). For the operationalization of *depressive symptoms*, the EURO-D 12-item scale varying from 0 (not depressed) to 12 (very depressed) was used (Prince et al., 1999). This scale has been validated in a cross-European study on depression (Copeland et al., 1999). *Heavy episodic drinking* (HED) is defined as drinking at least 60 grams of pure alcohol on at least one occasion in the seven days prior to the survey (WHO, 2014).

Employment status contains five categories: employed, unemployed, early retired (comprising people between 50 and 65 years old), homemakers and the inactive due to illness or disability. Within the group of the unemployed, a distinction was made between *displaced unemployed*, which refers to people unemployed because of workplace closure, and *non-displaced unemployed* (laid off, no extension of contract, their own decision and other non-structural reasons).

A number of socioeconomic and demographic factors that have been found to be related to mental health and care use were also controlled for. The consumption of medication for depression and anxiety increases by age (Graham & Vidal-Zeballos, 1998), whereas older people are more reluctant to contact specialized care (McAlpine, 2007). *Age* is the age at the date of the interview, shown as a categorical variable: 50–55 (reference category), 55–60 and 60–65 years old. Education is positively related to mental health and specialized care use, whereas somewhat negatively related to general care use (Gouwy et al., 2008). *Education* was categorized into lower (no schooling or levels 0–2), medium (levels 3–4) and higher (levels 5–6) according to the International Standard Classification of Education-97 (ISCED-97). *Partner status* is a dichotomous variable (co-resident partner = 1, no partner or non-resident partner = 0). Having a partner has been shown to be positively related to mental health, but negatively to mental health care use (Buffel et al., 2014). Whether the respondents were living in their country of birth is also included (*migratory status*: 0 = non-migrant; 1 = first-generation migrant) to capture the positive effects of migration on depressive symptoms (Missinne et al., 2012) as well as on mental health care use (Koopmans et al., 2013). Moreover, migrants are often part of a minority group, which has higher unemployment rates and probably stronger negative health effects of being unemployed (Paul & Moser, 2009).

The *degree of urbanisation* can be considered as a proxy for health care supply, because the availability of medical professionals may vary from a large city to a more rural area (Saxena et al., 2007). The five possible answers were reduced to a three-categorical variable: large or medium city (reference group), small town, and rural area or village. Finally, to capture any financial barriers to health care and medication use, *household wealth* was included. This was constructed by combining financial information about the main residence, the value of other real estate and the household's gross and net financial assets (MEA, 2013). Wealth was used instead of income, because wealth more accurately captures the actual financial situation of this age group (Galobardes et al., 2006). In order to deal with missing information on the wealth measurement, the multiple imputed datasets provided by the SHARE were employed. By imputing each missing value five times, a distribution of the missing value was created.

The *regional unemployment rates* for 2010 were retrieved from Eurostat ("Statistics: Employment and Social Policy indicators," 2014). For the regional level, the first-level Nomenclature of Territorial Units for Statistics (NUTS) was used, but for the countries where NUTS level 1 corresponds to the country as a whole, NUTS level 2 was used. After recoding, 97 regions were retained, each having at least six respondents. The results of the bivariate analyses can be found in Appendix 7 (for the metric variables, correlation matrix), Appendix 8 (for the categorical and metric variables (compare means)) and Appendix 9 (for the categorical variables (crosstabs)).

Analyses

The analyses comprise two parts. The first uses the indicators of mental health – depression and heavy episodic drinking – as dependent variables (Table 17) and subsequently, analyses were performed with the indicators of (mental) health care and medication use as the outcomes (Table 18). In both parts, a baseline model was estimated, exploring the relation with employment status and controlling for other determinants of mental health (care) – age, migratory status, community, education, wealth and partner status – and the regional unemployment rate. In the second part (Table 18), (mental) health care and medication use are the dependent variables. In the next model, the two indicators of mental health were included (with regard to GP consultations, general health was also controlled for), in order to examine whether the relations could be mainly ascribed to the respondents' mental health status. Subsequently, the two applications of the social norm of unemployment theory were

introduced. One model examines whether the regional level of unemployment moderates the relations between unemployment and mental health (Table 17, Models 2, Hypothesis 2.1.a), and between unemployment and (mental) health care use (Table 18, Models 3; Hypothesis 2.1.b). This was modelled by means of interaction terms. In the other model, the causation hypothesis is tested and it was estimated whether the relations of the unemployed with mental health (Models 3; Hypothesis 2.2.a) and (mental) health care use (Models 4; Hypothesis 2.2.b) differ between the displaced and the non-displaced unemployed. Given that 'displaced versus non-displaced unemployed' is a conditional factor, as it is only applicable to the unemployed, internal-interaction effects were used (Mirowsky, 1999). The difference in comparison to a common interaction effect is that there is no main effect of the dummy diplaced versus non-displaced unemployed.

Respondents are nested in two contexts – the region and the country – resulting in three-level multilevel models, which were calculated in MLwiN 2.15. Respondents (1) are nested in regions (2), which are nested in countries (3). Depending on the type of dependent variable, different multilevel analyses were carried out. Multiple regression for the metric variable of depression, and logistic regressions for the dichotomous outcomes (HED, psychiatrist consultations and medication use). For the latter, penalized (or predictive) quasi likelihood (PQL) was used, because it provides more accurate estimates than first order marginal quasi likelihood (MQL) (Hox, 2010). For the count variable (number of GP consultations), a negative binominal regression was needed in order to cope with the problem of over-dispersion (Van Rossem, 2010). The results of the control variables can be found in the extended tables in Appendix 10 (Extended Table 1), Appendix 11 (Extended Table 2, men) and Appendix 12 (Extended Table 2, women).

To make the odds ratios more comparable across the nested models, y-standardisation was carried out, as recommended by Mood (2010). Multiple imputation procedures were performed and the metric independent variables were grand-mean centred.

Results

The results confirm that unemployed men (b = 0,730) and women (b = 0,775) are more likely to be depressed than the employed, irrespective of the regional unemployment rate and the individual control variables (Model 1, Table 17). Unemployed men (OR = 1,292) are also

more likely to be heavy episodic drinkers. Furthermore, in Model 1, a main effect of regional unemployment on depression is observed, although not on drinking behavior. Men (b = 0,032) and women (b = 0,040) score higher on the depression scale in regions with a higher than average unemployment rate.

When testing the moderation effect of regional unemployment (Model 2), it is found that retired men ($b_{interaction}$ = 0,036) and women ($b_{interaction}$ = 0,036) between 50 and 65 years old, are more likely to be depressed in regions with higher unemployment, whereas this is not the case for the unemployed. The main effect of regional unemployment in Model 2, referring now to the reference category for employment status (the employed), remains significant. Therefore, employed men and women are more depressed (b = 0,022; 0,031) in regions with a higher level of unemployment. When the reference category is changed to the unemployed, the main effect of regional unemployment for the unemployed (b = 0,014[0,013]; 0,011[0,016] not shown in tables) is not significant. This means that the depression scores of the unemployed are not significantly associated with the regional unemployment level.

Only among men, do significant internal-interaction effects with the variable 'displaced versus non-displaced unemployment' appear. As expected (Hypothesis 2.2.a), men unemployed due to workplace closure (displaced unemployed) are less likely to be depressed ($b_{main\ effect}$ = 0,810; $b_{interaction}$ = -0,281) and to be heavy episodic drinkers ($OR_{main\ effect}$ = 1,364; $OR_{interaction}$ = 0,812), but still more so than the employed (again by changing the reference categories in order to understand the main effect for the displaced workers). The latter supports the causation hypothesis, which assumes that unemployment leads to deterioration in mental health.

Table 17: The relation between employment status and mental health indicators, by regional unemployment rate and displaced versus non-displaced unemployment

	Men														
	Depression									Heavy episodic drinking					
	Model 1			Model 2			Model 3			Model 1		Model 2		Model 3	
	B	SE		B	SE		B	SE		OR		OR		OR	
Intercept	2,303	0,097	***	2,293	0,096	***	2,302	0,097	***	0,356	***	0,355	***	0,356	***
Employment status (ref. employed)															
Unemployed	0,730	0,070	***	0,767	0,073	***	0,810	0,081	***	1,292	***	1,269	***	1,364	***
*displaced							-0,281	0,142	*					0,812	*
Early retired	0,390	0,048	***	0,398	0,048	***	0,388	0,048	***	1,133	**	1,133	**	1,132	**
Disabled/ill	1,820	0,072	***	1,832	0,074	***	1,820	0,072	***	0,991		0,994		0,990	
Homemaker	0,582	0,137	***	0,578	0,138	***	0,581	0,137	***	0,793		0,775		0,793	
Regional unemployment	0,032	0,009	***	0,022	0,010	*	0,032	0,009	***	0,999		0,997		0,999	
*unemployed				-0,008	0,012							1,012			
*early retired				0,036	0,008	***						1,004			
*disabled/ill				0,004	0,013							1,001			
*homemaker				-0,005	0,032							0,973			
	Women														
Intercept	3,164	0,113	***	3,165	0,112	***	3,165	0,113	***	0,176	***	0,177	***	0,176	***
Employment status (ref. employed)															
Unemployed	0,775	0,085	***	0,822	0,088	***	0,798	0,098	***	1,192		1,179		1,100	
*displaced							-0,079	0,173						1,254	
Early retired	0,457	0,055	***	0,469	0,055	***	0,457	0,055	***	0,949		0,943		0,949	
Disabled/ill	1,691	0,083	***	1,683	0,085	***	1,691	0,083	***	1,111		1,105		1,111	
Homemaker	0,313	0,061	***	0,309	0,061	***	0,313	0,061	***	1,013		0,998		1,012	
Regional unemployment	0,040	0,010	***	0,031	0,011	**	0,040	0,010	***	0,984		0,986		0,984	
*unemployed				-0,015	0,015							1,007			
*early retired				0,036	0,010	***						0,996			
*disabled/ill				0,023	0,016							1,005			
*homemaker				0,004	0,010							0,989			

Controlled for age, migratory status, partner status, education, household wealth and community; [a] Grand mean centred; *p < 0,050 **p < 0,010 ***p < 0,001

Unemployed men and women are more likely to consult a psychiatrist (OR_{men} = 1,605; OR_{women} = 1,366) or GP (OR = 1,073; 1,177) and to take medication for depression or anxiety (OR=1.410; 1.278) compared with the employed (Model 1, Table 18). For unemployed men, the higher likelihood of contacting a psychiatrist cannot be entirely explained by their worse mental health (OR = 1,363), and the same is true for unemployed women with regard to GP consultations (OR = 1,060) (Model 2). By contrast, unemployed men's higher frequency of contacting a GP and unemployed women's psychiatrist consultations – and for both, their medication use – can be ascribed to their worse mental health (Model 2). In accordance with a previous study (Buffel et al., 2014), men with heavy alcohol consumption are less inclined to seek medical care and to use medication, while poor general health and depressive symptoms are highly related to greater medical services use.

Only among women, there is a significant main effect of regional unemployment. In regions with a high level of unemployment, women will more frequently contact a GP (OR = 1,016; Model 2), also irrespective of their mental and general health (OR = 0,010; Model 3). As hypothesized, the relation between unemployed men (versus employed) and the number of GP consultations is weakened by the regional unemployment level. Unemployed men ($OR_{interaction}$ = 0,989) have fewer GP consultations in regions with high unemployment than in regions with a lower unemployment level, taking into account actual mental and general health (Hypothesis 2.1.b).

In the last models, it can be observed that – again only among men – it matters whether the unemployed are displaced or non-displaced, whereas the positive relation between medical care use and women's unemployment does not differ significantly according to the reason for unemployment. As hypothesized, male displaced workers (OR = 1,282 – 0,665) are less likely to take medication than the non-displaced (OR = 1,282), irrespective of their actual mental health status (Hypothesis 2.2.b). The main effect of unemployment (compared with employment) is significant in Model 4, as here it refers to the non-displaced unemployed. In short, only the medication use of the male non-displaced unemployed cannot be ascribed completely to their worse mental health status.

Table 18: The relation between employment status and (mental) health care and medication use, by regional unemployment rate and displaced versus non-displaced unemployment

	Men																							
	Psychiatric consultations								Medication use								GP-consultations							
	Model 1		Model 2		Model 3		Model 4		Model 1		Model 2		Model 3		Model 4		Model 1		Model 2		Model 3		Model 4	
	OR		OR		OR		OR		OR		OR		OR		OR		OR		OR		OR		OR	
Intercept	0,123	***	0,106	***	0,105	***	0,106	***	0,182	***	0,152	***	0,152	***	0,152	***	1,703	***	1,631	***	1,637	***	1,631	***
Health indicators																								
Depression			1,211	***	1,210	***	1,210	***			1,230	***	1,230	***	1,230	***			1,035	***	1,035	***	1,035	***
Heavy episodic drinking (ref no)			0,759	*	0,763	*	0,755	*			0,763	**	0,765	**	0,759	**			0,944	*	0,945	*	0,945	*
General health																			1,201	***	1,202	***	1,201	***
Employment status																								
Unemployed	1,607	***	1,363	*	1,403	*	1,480	**	1,410	***	1,184		1,196		1,282	*	1,073	*	0,984		0,995		0,980	
*displaced							0,669								0,665	*							1,013	
Early retired	1,613	***	1,417	**	1,433	**	1,418	**	1,718	***	1,550	***	1,544	***	1,547	***	1,184	***	1,087	***	1,085	***	1,087	***
Disabled/ill	3,707	***	2,543	***	2,533	***	2,545	***	3,384	***	2,380	***	2,381	***	2,379	***	1,629	***	1,258	***	1,251	***	1,258	***
Homemaker	1,758	**	1,532	*	1,359		1,534	*	1,552	**	1,327		1,207		1,327		1,066		0,948		0,948		0,948	
Regional unemployment	0,999		0,988		0,970		0,989		1,002		0,994		0,998		0,994		1,004		1,001		1,003		1,001	
*unemployed					0,974								0,986								0,989	*		
*early retired					1,035								0,999								0,994			
*disabled/ill					1,029								0,992								1,001			
*homemaker					0,930								0,920								0,998			
	Women																							
Intercept	0,207	***	0,159	***	0,158	***	0,159	***	0,297	***	0,237	***	0,236	***	0,237	***	2,055	***	1,913	***	1,911	***	1,913	***
Health indicators																								
Depression			1,221	***	1,221	***	1,221	***			1,204	***	1,204	***	1,204	***			1,031	***	1,030	***	1,031	***
Heavy episodic drinking (ref no)			0,870		0,872		0,871				0,932		0,932		0,932				1,035		1,034		1,035	
General health																			1,227	***	1,226	***	1,227	***
Employment status																								
Unemployed	1,366	**	1,146		1,170		1,166		1,278	***	1,102		1,093		1,073		1,177	***	1,060	*	1,065	*	1,063	*
*displaced							0,929								1,092								0,988	
Early retired	1,578	***	1,378	***	1,374	***	1,378	***	1,582	***	1,434	***	1,432	***	1,434	***	1,168	***	1,062	***	1,060	**	1,062	***
Disabled/ill	2,826	***	2,128	***	2,148	***	2,127	***	2,652	***	2,099	***	2,102	***	2,099	***	1,530	***	1,179	***	1,178	***	1,179	***
Homemaker	1,396	***	1,278	**	1,261	**	1,278	**	1,393	***	1,307	***	1,300	***	1,307	***	1,137	***	1,048	*	1,048	*	1,048	*
Regional unemployment	0,999		0,984		0,990		0,984		1,013		1,002		1,003		1,002		1,016	***	1,010	*	1,010	*	1,010	*
*unemployed					0,980								1,003								0,996			
*early retired					0,988								0,991								0,998			
*disabled/ill					0,984								0,995								1,001			
*homemaker					1,008								1,005								1,004			

Controlled for age, migratory status, partner status, education, household wealth and community; [a] Grand mean centred
*p < 0,050 **p < 0,010 ***p < 0,001

Discussion

The aim of this study was to test the social norm effect of unemployment on mental health, as well as on mental health care and medication use. By relying on the SHARE data, there was the opportunity to do this by using regional unemployment rates as proxy for the social norm of unemployment and via an alternative approach, by distinguishing between the displaced and non-displaced unemployed.

Before discussing the main findings, some weaknesses in the study should be noted. The first, and common, limitation in the field concerns the temporal order of the employment status, health and professional care use indicators. Unfortunately, even the longitudinal panel design of the SHARE cannot solve this problem, as the time span between the second and the fourth wave is too long (3 – 4 years). In addition, wave three of the SHARE (SHARELIFE) does not contain information about depressive symptoms. It does contain information about the duration of unemployment, but this information is only available for respondents who had also participated in the first or second wave. Accordingly, this study was not able to test potential habituation effects; as has been done in previous work (Clark et al., 2008; Oesch & Lipps, 2013; Winkelmann, 2014). However, those studies show that these effects are rather weak.

The second limitation concerns the direction of the relation between employment status and mental health. The possibility of reversed causality biasing the results cannot be ruled out. First, a displaced worker approach is used, which is a commonly recognized strategy to partially tackle this issue (Schroder, 2013; Winkelmann, 2014). For some minor concerns related to the displaced worker approach, the discussions of Eliason and Storrie (2009a) and Schmitz (2011) can be referred to. To further reduce the impact of selection effects, the relevant confounding factors are controlled for and people who were inactive due to illness or disability are excluded from the category of the unemployed (Beland et al., 2002). It remains possible that even if initial job loss is not caused by health problems, selection bias can occur because unemployment may have a detrimental impact on health (Paul & Moser, 2009), and subsequently may make finding a new job more difficult (Stewart, 2001). Nevertheless, the meta-analysis by Paul and Moser (2009) shows that mental health selection effects on unemployment and on subsequent job search are weak.

Putting aside these limitations, this study does offer some important findings. First of all, evidence is found for the causation hypothesis, as both the non-displaced and the displaced unemployed are more likely to be depressed than the employed. Given that selection bias is minimal for the unemployed due to workplace closure (Schroder, 2010, 2013; Strully, 2009), this finding confirms that as the financial situation of respondents has been taken into account, unemployment captures not only the loss of income, but also several socio-psychological factors, such as a loss of status and self-esteem, social isolation and the lack of time structure (Bartley et al., 2006; Jahoda, 1981). These lead to a deterioration of mental health.

Second, only the number of GP-consultations of the unemployed men depends on the regional unemployment level. As hypothesized, being unemployed in a region with low unemployment, triggers the unemployed men to have more contact with a GP than being unemployed in a region with high unemployment, irrespective of their mental and general health status. In accordance with Oesch's study (2013), the relation between unemployment and mental health, in terms of depressive symptoms and problem drinking, does not vary significantly across levels of regional unemployment. As a possible explanation, Oesch & Lipps (2013) refer to the opposite impact of a high unemployment rate, in that in regions with high unemployment, the duration of unemployment may be longer and the prospects of finding a new job very poor, especially during a recession. Therefore, the contrasting effects of a high unemployment rate on the relation between unemployment and mental health could neutralize each other. Another explanation could be that 'region' is not a particularly adequate reference group, as non-geographical reference groups may possibly be more suitable. "Spatial neighbours are not always social neighbours" (Wilkinson & Pickett, 2007). It is also possible that individuals choose their reference groups wisely, for instance the unemployed do not engage in 'unhealthy' upward comparisons (Prag et al., 2014), by comparing themselves with the employed, because they would feel less capable and more different from the norm. Other researchers (Stam et al., 2015) encourage the use of more direct measurements of the social norm of unemployment, to obtain insights into the processes of social comparison, stigmatization and social exclusion.

In contrast to the unemployed, it seems that the region people live in matters for the employed, and early retirees. The employed are more depressed in regions with high unemployment rates. As a result, the mental health gap between the unemployed and the employed has shrunk, but only due to higher levels of depression among the employed in

regions with a high level of unemployment. This may be explained by higher perceived job insecurity (Esser & Olsen, 2011; Dixon et al., 2013), feelings of guilt, higher work load in the shrinking sectors, and/or less alternative job options for the employed (Benach, et al., 2014, Clark et al., 2010, Buffel et al., 2015c). The results also reveal that retired men and women between 50 and 65 years old are even more depressed in regions where unemployment is higher. People who retire before the age of 65 can be considered as a specific subgroup that is probably more vulnerable to the recession; possibly a group of discouraged workers whose presence indicates a form of hidden unemployment. They are no longer on the Labor-market, because their chances of finding work are low, given their age and the high local unemployment rates. As a result, they may depend on a small replacement income, be more insecure about their future and be vulnerable to economic instability, all of which leads to more depressive symptoms. Selection effects could also be at work, when in regions with high unemployment the older and less-productive employees are perceived as too costly and are therefore pushed out of the Labor-market into retirement. They also may not be eligible for disability benefits, possibly because rules about accessing social security are have become stricter as a response to the crisis (Blomqvist, 2014).

Third, with regard to the alternative application of the social norm of unemployment theory, both hypotheses are confirmed among men. The mental health effects of unemployment, in terms of depression and problem drinking, are less severe if unemployment is the result of a workplace closure. In line with Clark's study (2003), this social norm effect only occurs among men. Male displaced workers suffer less from their unemployment status than the other unemployed, possibly because of shared experiences among colleagues and because of less stigmatization. They may more easily attribute their Labor-market situation to structural factors, which makes them feel less responsible, and hence does not reduce their self-esteem (Winefield et al., 1992). Fourth, the male displaced unemployed also use fewer antidepressants and anxiolytics than their non-displaced unemployed counterparts. This is mainly related to their better mental health. Nevertheless, the non-displaced unemployed still have a higher medication use than expected based on their actual mental health. Based on the social norm theory, this can be seen as an indication that non-displaced unemployed men feel more stigmatized and make internal attributions for their unemployment. They perceive their unemployment status as a personal failure, which may trigger medication use as an individualized coping strategy. This finding, whereby a non-medical problem – such as

unemployment – is individualized and treated by medication, is a clear indication of the medicalization of unemployment (Buffel et al., 2015a, 2015b).

In sum, while, Clark (2010) points to the importance of high and low levels of Labor-market security (job security among the employed and ease of finding a new job for the unemployed), when trying to test the social norm effect of unemployment, the current study focuses on the unemployed and its contribution lies in stressing the importance of the distinction between the displaced and non-displaced unemployed when modelling the social norm effect.

Conclusion

The aim of this study is to advance our understanding on the role of unemployment for people's mental health and consequently seeking professional health care. To further our understanding of the social norm effect of unemployment we need to go beyond comparing across regions with different unemployment levels. The regional unemployment level seems to be a more relevant indicator of Labor-market conditions for the employed and the retired, instead of the unemployed, especially during a recession. One alternative approach is to distinguish between the displaced and the non-displaced unemployed which, in the present study is a step in the right direction, especially among men. Simultaneously, this approach can provide more convincing support for the causation hypothesis of unemployment.

CHAPTER 9

Study 3. The mental health consequences of the economic crisis in Europe among the employed, the unemployed, and the non-employed

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Buffel V, Van de Velde S, & Bracke P (2015) The mental health consequences of the economic crisis in Europe among the employed, the unemployed, and the non-employed. Social Science Research, 54, 263–288.

Applying a multi-level framework to the data from the European Social Survey's Round 3 (2006) and Round 6 (2012), we assessed the crisis by increases in rates of unemployment, while also controlling for countries' pre-crisis economic conditions. We found a positive relation between depression and an increase in national unemployment rates. This relation can be only partly ascribed to an increase in the number of unemployed and those employed in nonstandard job conditions – with the exception of the self-employed and women working part-time. The crisis effect is more pronounced among men and those between 35 and 49 years of age. Moreover, in strongly effected countries, the crisis has changed the relation between part-time work and depression, between depression and certain subcategories of the unemployed (looking for a job or not looking), and between depression and the non-employed.

Introduction

The economic crisis that has affected Europe since 2008, and the related increase in unemployment, worsening of working conditions, and losses of income have raised concerns about the mental health of the population (MHC, 2011). As companies seek to reduce Labor costs in order to remain afloat, many Europeans have lost their jobs, or experienced cuts in work hours, wages, and other benefits (Eurofound, 2013). Even the previously protected public sector has reacted to economic pressure through an increase in outsourcing and temporary jobs (Benach et al., 2014). Evidence consistently shows that unemployment is associated with an increase in mental health problems (Bartley, 1994; McKee-Ryan et al., 2005; Paul & Moser, 2009). The fear and insecurity generated by the anticipation of unemployment is also associated with poor mental health – in some cases even more so than actual job loss (Benach & Muntaner, 2007; Buffel, Dereuddre, & Bracke, 2015; Burgard, Brand, & House, 2007). Recent European research has indeed shown sharp increases in unemployment and job insecurity (Eurofound, 2013), as well as in depressive feelings and suicidality (Cooper, 2011).

Within the European context, the current economic crisis has been especially linked to increased mental health problems in Greece (Economou et al., 2013; Madianos, Economou, Alexiou, & Stefanis, 2011), Italy (De Vogli et al., 2014), Spain (Cordoba-Dona et al., 2014; Fernandez-Rivas & Gonzalez-Torres, 2013; Gili et al., 2012; Roca, Gili, Garcia-Campayo, & Garcia-Toro, 2013), and the UK (Barr et al., 2012; Katikireddi et al., 2012). However, these countries differ significantly from each other, both in terms of economic conditions prior to the start of the crisis and the degree to which they have been affected by the recession. Instead of incorporating actual measurements of economic change due to the crisis, most existing studies were restricted to crude period measurements. For example, these studies compared the prevalence of mental health problems at the start of the economic crisis with their prevalence during the crisis. In addition, by using single-country data, these studies were unable to examine whether there is a mental health effect of the current crisis above and beyond the effect on individuals whose employment status or job conditions changed. It therefore has remained uncertain whether the economic crisis only had an effect on the mental health of individuals who actually lost their jobs, or also on those who were already non-employed or unemployed before the crisis, and those who remained employed during the crisis. For example, high unemployment rates might limit workers' bargaining power, while

increasing job insecurity or forcing workers to accepting less desirable employment conditions (e.g., part-time and temporary contract work) (Benach et al., 2014).

The few studies that have applied a cross national perspective and/or examined the distressing effects of macroeconomic conditions were either carried out during a period of normal economic fluctuations (Catalano et al., 1985; Dooley & Catalano, 1984; Stuckler, Basu, Suhrcke, & McKee, 2009) or used aggregated data (Baumbach & Gulis, 2014). One study by Noelke and Beckfield (2014) did use a dynamic macroeconomic indicator for examining the impact of local Labor demand (indicated by unemployment rates) on mortality risks. However, this research was limited to the American population aged 50 years or older.

Using information from the European Social Survey (ESS), a representative data set of the population in almost all European countries, we were able to fill this gap in the literature. In our study, we used data from ESS Round 3 (2006), which was collected before the start of the economic crisis, and from ESS Round 6 (2012), which was collected during the crisis. Both rounds gathered information on depression using a shortened version of an internationally validated and reliable inventory: the Centre for Epidemiologic Depression Scale (CES-D) (Missinne et al., 2014; Van de Velde et al., 2010). The data allowed us to explore the extent to which the economic crisis affects depressive feelings among the working-age population. Applying a multi-level framework allowed us to assess the economic crisis by increases in unemployment rates, while also controlling for the economic conditions of the countries at the start of the crisis. While a substantial body of research has focused on health behavior, suicide, and mortality (for an overview see (Falagas, Vouloumanou, Mavros, & Karageorgopoulos, 2009; Modrek, Stuckler, McKee, Cullen, & Basu, 2013; Stuckler, Basu, Suhrcke, Coutts, et al., 2009), our current study focused on depressive symptoms. This is because mental health is very sensitive to both macroeconomic and individual changes in unemployment and insecure employment conditions (Benach et al., 2014; Katikireddi et al., 2012; Mattei, Ferrari, Pingani, & Rigatelli, 2014). To the best of our knowledge, ours is the first study to examine the depressive effects of the economic crisis across a wide range of European countries using a multi-level framework.

Theory

How employment status and work conditions are related to depressive symptoms at the individual level

Research has consistently found that unemployment is associated with increased mental problems (McKee-Ryan et al., 2005; Paul & Moser, 2009). On the one hand, the *selection hypothesis* argues that individuals with mental health problems are more likely to be without a job (Arrow, 1996), to remain so for longer periods of time (Stewart, 2001), and/or to have characteristics such as low self-esteem and feelings of helplessness – that make them more vulnerable to both unemployment and poor health (Schmitz, 2011; Schroder, 2013). On the other hand, the *causation hypothesis* posits that unemployment causes mental health problems because the subsequent loss of income raises the thresholds for both accessing mental health care use and pursuing healthy lifestyles (Schroder, 2013). Unemployment may increase feelings of insecurity, shame, and stress related to the loss of income, time structure (Jahoda, 1981), and status (Janlert & Hammarstrom, 2009). In addition, having a job can provide a feeling of control, whereas a lack of control – which is often related to unemployment or a passive work situation – is a well-known risk factor for depression (Mirowsky & Ross, 2003).

While the majority of research on the relation between employment status and mental health primarily has differentiated between those who are and are not employed (Dooley, 2003; Virtanen et al., 2006), some studies also investigated mental health disparities within both groups. Among the inactive population, pre-retirement (Doshi, Cen, & Polsky, 2008) and disability (Morris, Cook, & Shaper, 1994; Quaade, Engholm, Johansen, & Moller, 2002) have been associated with higher levels of distress and mortality. In addition, discouraged workers (the unemployed who want a job but are not actively looking for one) may have higher levels of distress than the unemployed who are actively seeking employment (Dooley, 2003).

Within the group of the employed, a number of studies find that nonstandard work, such as (involuntary) part-time jobs (De Moortel, Vandenheede, Muntaner, & Vanroelen, 2014), temporary employment (Martens, Nijhuis, Van Boxtel, & Knottnerus, 1999; Virtanen et al., 2005), and employment without a contract (Artazcoz, Benach, Borrell, & Cortes, 2005) is associated with higher levels of distress. The health disparity between standard full-time workers and nonstandard workers is often ascribed to the latter group's higher levels of job insecurity and lack of legal protection (Benach et al., 2000; Benavides, Benach, Diez-Roux, &

Roman, 2000; Virtanen, Kivimaki, Elovainio, Vahtera, & Ferrie, 2003). There is also evidence that women are disproportionately represented in jobs with nonstandard contracts (Benach et al., 2002). However, not all research confirms the negative mental health effects of temporary work (Artazcoz et al., 2005), part-time work or self-employment (Jamal, 1997; Parslow et al., 2004). When part-time work and self-employment are strategies to enhance the balance between work and care responsibilities, they may actually improve mental health, especially among women (Jamal, 1997; Parslow et al., 2004). Despite these empirical findings, evidence for the negative mental health effects of nonstandard jobs is still scarce and inconclusive (Benach & Muntaner, 2007; Keuskamp, Ziersch, Baum, & LaMontagne, 2013; McKee-Ryan & Harvey, 2011).

The impact of the economic crisis on depressive symptoms through changing employment status and work conditions and/or their relation to depressive symptoms

The current economic crisis has led to higher unemployment rates, together with higher levels of employment insecurity due to the continued increase in flexibility and non-standardization of the Labor-market (Benach et al., 2000; Benach et al., 2014; Benavides et al., 2000; Eurofound, 2013). Additionally, a substantial body of research predicts that mental health problems will increase during an economic crisis. Therefore, changes in the composition of the working-age population should result in an overall increase in mental problems, given that a larger portion of the population is likely to be unemployed or in nonstandard jobs during times of recession.

The negative association between mental health and unemployment or non-employment may be intensified during times of economic contraction (Blomqvist et al., 2014; Paul & Moser, 2009). Fewer new job opportunities increases competition between job-seekers, while decreasing individual negotiating power (Turner, 1995) and collective bargaining rights (Karamessini & Rubery, 2013). In several European countries – especially Southern European countries (Eurofound, 2013) – unemployment and disability benefits have been cut back. This makes the unemployed, and those not employed due to illness or disability, more vulnerable to financial difficulties. In addition, stricter criteria for sickness insurance, – as one of the possible implications of an austerity policy – can lead to stronger health selection effects for sickness and disability benefits (Blomqvist et al., 2014). Research has also found that non-employment due to disability or sickness is more strongly related to poor mental health when

in a context of economic deprivation, as characterized by a high overall inactivity rate (Fone, Dunstan, Williams, Lloyd, & Palmer, 2007). However, being unemployed in a context of high total unemployment may be less stigmatizing and less shameful, because the experience is shared (Clark et al., 2010; Clark, 2003). Unemployment may also be less stressful because it can be attributed to external causes (economic recession) rather than to internal ones (personal failure) (Dooley, 2003).

Recession also affects the mental health of people who remain employed, because the unstable Labor-market increases the extent of job insecurity (Dixon et al., 2013). Employees may be more likely to accept involuntary part-time work or temporary contract work in order to remain employed (Benach et al., 2014; Fenwick & Tausig, 1994; Karamessini & Rubery, 2013). They may also find their work-life balance under greater pressure due to increased job demands and reduced latitude for making decisions (Fenwick & Tausig, 1994). Moreover, austerity measures and implementation of Labor-market reforms may affect employment conditions, with negative effects on health (Karanikolos, Mladovsky, et al., 2013). In many countries – such as Greece, Spain, Ireland, Hungary, Italy, Portugal, and the UK – wages (especially in the public sector) have been frozen or reduced (Bettio, 2012; Rubery & Rafferty, 2013). In Greece, the minimum wage has been lowered by 20% (Karanikolos, Mladovsky, et al., 2013), while social benefits and health care services have been cut back (Bettio, 2012; Karanikolos, Mladovsky, et al., 2013). During an economic downturn, these mechanisms may attenuate the positive mental health effects of being employed (Hunt & Eisenberg, 2010) in a standard job (Buffel, van de Straat, & Bracke, 2015; Wang et al., 2010).

Alternatives to contract employment, such as self-employment or extending education, have also become more prevalent during the current economic crisis. The unstable Labor-market, and the resulting lack of adequate job opportunities, has encouraged many students to prolong their education (Bell & Blanchflower, 2011). Conversely, others have been forced into the Labor-market because of their family's inability to provide financial support (Economou et al., 2013). In the group comprising early-school-leavers, men are over-represented (Bettio, 2012). Although mental health problems are as prevalent among students as non-students of the same age (Blanco et al., 2008; Hunt & Eisenberg, 2010), the pressure on and competition between students, combined with pessimistic Labor-market prospects, may increase their risk of depressive feelings during an economic contraction. Early-school-leavers may actually have a higher likelihood of being unemployed or underemployed (Bell & Blanchflower,

2011), which in turn is related to more depression and anxiety (Paul & Moser, 2009). Young people have more risk of being marginalized in the Labor-market because they lack the skills, work experience, and job search abilities required to find employment (ILO, 2006). This makes them more vulnerable to mental health problems and suicide during an economic contraction (Uutela, 2010).

Despite an increased risk of insolvency, the prevalence of self-employment has also risen, most prominently in the countries hit hardest by the recession. Self-employment often acts as a coping mechanism for female workers to address household income loss in a former male-breadwinner model (European Commission, 2010b; Karamessini & Rubery, 2013). In the relevant literature, this is termed the "added worker effect" (Bettio, 2012). This effect can also refer to women who were initially full-time caregivers, but are subsequently forced into the Labor-market as part-time workers due to economic need. Particularly in Southern Europe, where there is only minimal public childcare support (Artazcoz et al., 2014), working part-time has been related to poor mental health among women (De Moortel, Vandenheede, & Vanroelen, 2014).

In sum, the main objective of this study was to assess the impact of the economic crisis on depression in Europe by taking countries' pre-crisis economic conditions and the strength of the crisis into account. We investigated the extent to which the expected positive relation between a high increase in the national unemployment rate (from 2005 to 2011) – as an indicator of the strength of the crisis – and depression can be ascribed to changes in the composition of the working-age population. We hypothesized that an increase in unemployment (those actively seeking jobs as well as those who want a job but are not actively looking), as well as employment in nonstandard jobs (part-time work and jobs with a temporary contract or no contract), would partly contribute to an increase in the levels of depression in the countries hardest hit by the crisis (**Hypothesis 3.1**). Therefore, the individual-level relations between depression and employment status and conditions were studied. In addition, we examined how these relations are moderated by the impact of macroeconomic changes resulting from the crisis. We assumed that in countries strongly affected by the recession, the positive relation between depression and non-employment due to sickness or disability would be stronger (**Hypothesis 3.4**), while the negative relation between depression and employment would be attenuated (**Hypothesis 3.3**). We assumed this negative relation would be particularly attenuated among women who are self-employed or

working part-time. Further, being a student may be more related to depressive symptoms during the economic crisis. With regard to the positive relation between unemployment and depression, two contrasting hypotheses can be formulated. On the one hand, a stronger relation with depression can be expected as the job supply decreases and competition between job-seekers increases; this would particularly be the case those who are still looking for a job (**Hypothesis 3.2.a**). On the other hand, based on *the social norm theory* and the assumption that health selection effects in unemployment are smaller during recession (Blomqvist et al., 2014), the relation with depression might be attenuated, as unemployment is more random and perceived more as a structural problem, and because the stigma related to it may be lessened (**Hypothesis 3.2.b**). The analyses are gender-differentiated, as there is overwhelming evidence that employment status and conditions are differently related to depression depending on gender (Artazcoz et al., 2004; Goldman-Mellor, 2010). The recession itself may also have differential effects on men and women (Bettio, 2012; Karamessini & Rubery, 2013).

Method

Data

The current study used data from Round 3 (2006) and Round 6 (2012) of the European Social Survey (ESS, www.europeansocialsurvey.org), covering more than 20 European countries. The ESS has a repeated cross-sectional survey design[18], and both rounds include a comprehensive module on subjective well-being. For each country, the ESS sample was designed following a strict, randomized probability procedure, and data was gathered by means of standardized face-to-face interviews. ESS information is representative for the general population aged 15 years and older living in private households, irrespective of their language, citizenship, and nationality.

We only used information on countries that were included in both rounds, resulting in a sample comprising of 34 953 men and 40 280 women across 20 countries. From this sample, we selected the subsample of the working-age population (20–65 years of age), giving us a sample of 25 765 men and 28 932 women. None of the variables, except the income

[18] A repeated cross-sectional design means that the survey is carried out more than once over time, but each time with other respondents. The survey is also performed each time in the same way, with largely the same questions and representative of the same population.

measurement and the CES-D 8 scale (see below), contained more than 2,0 % missing values. For men, 1,6 % of the information on employment status was missing; for women, 1,8 % was missing. Spain had the highest percentage of missing information on employment status (9,1 % in men and 9,8 % in women). The accumulated percentage of missing values for the total sample was 5,5%. These percentages are relatively low, which allowed us to omit these cases from the sample. As a result, the final sample contained information on 24 343 men and 27 336 women.

Measures

Depressive feelings were measured using an eight-item version of the Center for Epidemiologic Studies-Depression Scale (CES-D). The CES-D 8 is constructed to identify populations at risk for developing depressive disorders (Radloff, 1977). It is not meant to be used as a clinical diagnostic tool by itself. Respondents were asked to indicate how often in the week before the survey they felt or behaved in a certain way (e.g., felt depressed, slept badly). Response categories range from 1 (none or almost none of the time) to 4 (all or almost or all of the time). Scale scores are assessed using non-weighted, summated rating and ranged from 0 to 24, with higher scores indicating a greater frequency and severity of depressive complaints. If four or fewer items were missing, mean substitution was applied. The reliability of the scale was good (Cronbach's alpha for men = 0,802, and for women = 0,834).

For the independent variable, *employment status*, we relied on the question "Which of these descriptions best describes your situation (in the last seven days)?" with nine answer categories: (1) in paid work (or away temporarily) (employee, self-employed, working for your family business), (2) in education, (not paid for by employer), (3) unemployed and actively looking for a job, (4) unemployed, wanting a job but not actively looking for a job, (5) (permanently) sick or disabled, (6) retired, (7) in community or military service, (8) doing housework, looking after children or other persons, and (9) other answer possibilities. For the construction of our categorical variable employment status, we reduced the categories to three broad groups: the unemployed (3 and 4); the non-employed (2, 5, 6, and 8) and the employed (1). Within each broad category, we made a further distinction by using conditional factors (Mirowsky, 1999), given that these variables were only applicable to one category of the main variable of employment status. Based on the argument of Dooley and colleagues (Dooley, 2003; Dooley et al., 2000), our broad category of the unemployed consisted of both, the

respondents answering with answer 3 or 4. Dooley (2003) has argued that the strict definition of unemployment based on the ILO conventions and the Bureau of Labor Statistics (1994)—i.e., unemployed and actively looking for a job (answer 3) – is an underestimation of the unemployed, and perhaps also of the negative relation with mental health. This is because the definition does not include those without work who want a job, but are not or no longer actively looking (answer 4), The latter are also defined as discouraged workers, and are often even more distressed than the "official unemployed" (Dooley, 2003). However, by using the conditional dummy variable for the unemployed – (0) not looking for a job and (1) looking for a job – we were still able to distinguish between the "official unemployed" as defined by the ILO and discouraged workers (those who are not actively looking for a job but still want one). In the category of the non-employed[19], a distinction is made between (early) retirees (reference category), students, homemakers, and those unable to work due to illness or disability. With regard to the employed, we included two conditional factors: *working hours* and *type of contract.* Both factors can be used to differentiate between standard and nonstandard work. In relevant literature, the latter is also sometimes referred to as flexible work, contingent work, or precarious work (Benach et al., 2000; Benach & Muntaner, 2007). With regard to working hours, we distinguished between full-time employment (more than 34 hours per week), marginal part-time employment (up to 19 hours per week), and substantial part-time employment (20 to 34 hours per week) (Bielenski, Bosch, & Wagner, 2002; Eurofound, 2007). Full-time employment is used as the reference category, as it is characteristic of standard employment. Type of contract is a categorical variable with four options: *unlimited contract, limited contract, no contract,* and *self-employed.* Unlimited contract (or permanent employment) was used as the reference category, because it is again characteristic of standard employment. Limited contract refers to temporary workers, who can be considered as having job insecurity (Benach et al., 2014). No contract refers to informal work, which is mostly characterized by minimal social protection (Benach et al., 2014).

The change in national unemployment rate between the pre-crisis period (2005) and the period during the crisis (2011) was taken as the main indicator of the impact of the crisis

[19] We use the term "non-employed" instead of inactive population, as the inactive population is defined by the ILO (2006) as the population of working age persons who are out of Labor-market force, and also includes "discouraged workers." We have categorized the latter in the unemployed group.

(Eurofound, 2013; Stuckler, Basu, Suhrcke, Coutts, et al., 2009)[20]. It is a relevant measurement to capture the economic turmoil and insecurity faced by the population during periods of economic instability, and it is closely reflects the everyday experience of individuals (Stuckler, Basu, Suhrcke, Coutts, et al., 2009). In addition, we controlled for the change in Gross Domestic Product (GDP) per individual from 2005 to 2011 (Dooley et al., 2000; Eurofound, 2013). We used data for the year before the interview in order to account for lagged effects of the economic crisis on distress-related outcomes (Tausig & Fenwick, 1999). This also produces the best model fit.[21]

In addition to using these change variables to estimate longitudinal or change effects (see further explanation in the statistical method section), we also took into account the economic state of each country before the crisis (i.e., the context variables) by using the 2005 national unemployment rates and GDP per individual. Using those two indicators is one of the most generic ways to describe the state of a country's economy, as they reliably reflect economic and Labor-market conditions (Eurofound, 2013). To calculate these contextual and change variables, we used external data from Eurostat (Labor Force Survey, 2014).[22] The macroeconomic indicators per country and period are shown in Table 19.

[20] The correlations between the total unemployment rate and that of men, women and the youth are given in Appendix 13; the same has been done in appendix 14 for the change in unemployment rate. As, the correlations are very high, I have opted for the total unemployment rate.

[21] The correlation between both measurements was not greater than r = 0,4. We also controlled for multicollinearity.

[22] For information on countries or years which are not available from Eurostat, we relied on OECD data (2015).

Table 19: Macroeconomic indicators per country for 2005 and 2011

		% unemployment		% male unemployment		% female unemployment		youth unemployment		GDP per capita		% GDP change previous year	
		2005	2011	2005	2011	2005	2011	2005	2011	2005	2011	2005	2011
Weaker	Germany	11,2	5,8	11,4	6,1	10,9	5,6	15,4	8,5	27000	31900	0,7	3,3
	Poland	17,9	9,7	16,7	9,0	19,4	10,4	36,9	25,8	6400	9600	3,6	4,5
	Switzerland	4,5	4,1	4,5	3,7	4,5	4,4	8,8	7,7	41300	60300	2,7	1,8
Weak	Norway	4,5	3,3	4,7	3,5	4,3	3,1	11,4	8,7	52900	71300	2,6	1,3
	Sweden	7,7	7,8	7,7	7,8	7,6	7,7	22,6	22,8	33000	40800	3,2	2,9
	Belgium	8,5	7,2	7,6	7,1	9,5	7,2	21,5	18,7	29000	33600	1,8	1,8
	Slovakia	16,4	13,7	15,6	13,7	17,4	13,7	30,4	33,7	7100	12800	6,7	3,0
Fairly weak	Netherlands	5,3	4,4	4,9	4,5	5,8	4,4	9,4	7,6	31500	35900	2,0	0,9
	France	8,9	9,2	8,2	8,8	9,7	9,5	21,0	22,6	27300	30700	1,8	2,0
Average	Finland	8,4	7,8	8,2	8,4	8,6	7,1	20,1	20,1	30000	35000	2,9	2,8
	Bulgaria	10,1	11,3	10,3	12,3	10,0	10,1	21,0	25,0	3000	5200	6,4	1,8
	Cyprus	5,3	7,9	4,4	8,1	6,5	7,7	13,9	22,4	18400	21000	3,9	0,4
Fairly strong	United Kingdom	4,8	8,1	5,2	8,7	4,3	7,4	12,8	21,3	31000	28200	3,2	1,1
	Denmark	4,8	7,6	4,4	7,7	5,3	7,5	8,6	14,2	38300	43200	2,4	1,1
	Slovenia	6,5	8,2	6,1	8,2	7,1	8,2	15,9	15,7	14400	17600	4,0	0,7
	Hungary	7,2	10,9	7,0	11,0	7,4	10,9	19,4	26,1	8800	9900	4,0	1,6
Strong	Portugal	8,8	12,9	8,7	12,6	8,8	13,2	20,7	30,3	14600	16100	0,8	-1,3
	Estonia	8,0	12,3	9,2	13,1	6,9	11,6	15,1	22,4	8300	12100	8,9	8,7
Stronger	Ireland	4,4	14,7	4,6	17,8	4,1	10,8	8,6	29,1	39200	35500	6,1	2,2
	Spain	9,2	21,4	7,1	21,1	12,0	21,8	19,6	46,2	21000	22700	3,6	0,1

Source: Eurostat and OECD.

We believed it was also important to take into account the period of the survey when examining depression. *Period* is a categorical variable: 2006 and 2012, with 2006 used as the reference category. By including the period variable in the models, we could partially control for time trends, such as normal economic cycles and changes to health, social, and Labor-market policies (Buffel, van de Straat, et al., 2015). In addition, by using 2006 as the reference period, we were able to compare the situation during the economic crisis (2012) with the situation in the most recent period before it started (2006).

We selected individual control variables known to be associated with depression: *demographic* (age and marital status) and *socioeconomic characteristics* (educational level and household income). *Age* is included as a categorical variable: 20–34, 35–49 (reference category), and 50–65 years of age. *Marital status* was assessed by distinguishing married (reference category) from divorced, widowed, and never married respondents. We measured the *educational level* of the respondents by their total number of years in full-time education. Respondents who reported a number of years that was three standard deviations from the country mean were considered outliers and removed from our sample. To account for nonlinear effects of education on depression, a squared term for education is also included. *The income level* of respondents was assessed by relative equivalent household income, using the Modified OECD equivalence scale (OECD, 2005). In this way, we could also partly take into account the partner's employment status. To account for the high number of item non-responses, relative equivalent income was coded into five categories, with one category representing respondents with missing income data. The other categories represent the low (< 50 % of the median equivalent income), moderate (50 % – 79 % of the median), high (80%–119 % of the median; reference category), and highest income groups (≥ 120 % of the median).[23]

Statistical methods

We used two Rounds (3 and 6) of the ESS, which has a repeated cross-sectional design and contains information about depression. Both rounds included information on roughly 20 European countries. We specified our multi-level model by considering the individuals (level 1) nested in country years (level 2). These were, in turn, nested in countries (level 3) (see Figure 3). In contrast to conventional or cross-classified multi-level modeling, which only

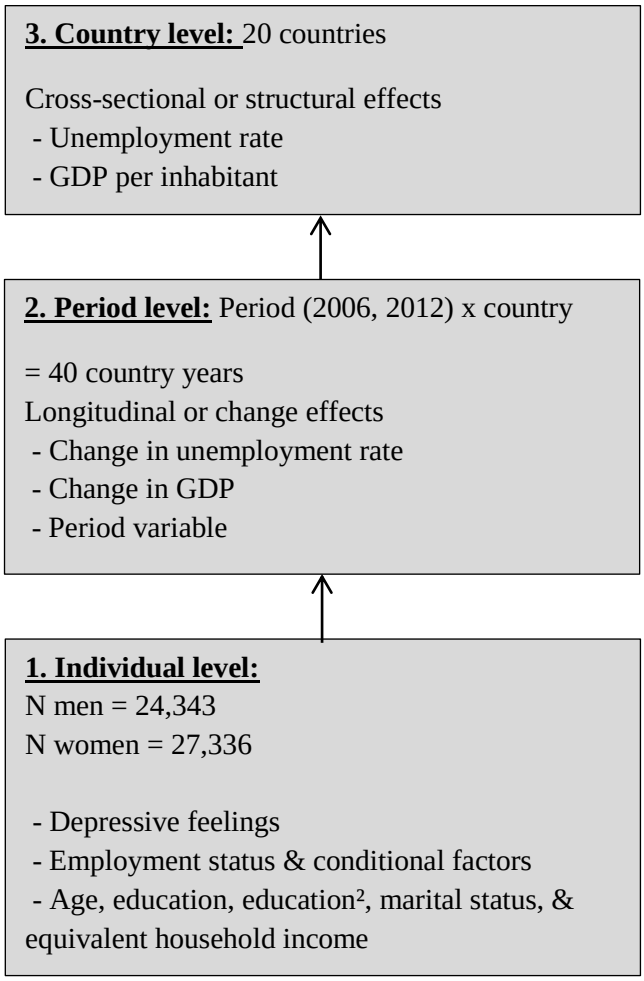
[23] With regard to depression, the category of respondents with missing data on income did not significantly differ from the reference category: those with a high income.

allows for the inclusion of a uniform period effect across all countries, this modeling had two advantages. First, it allowed us to control for specific national trends in the effect of the economic crisis. As not every country was affected by, or responded to the crisis in the same way (Stuckler, Basu, Suhrcke, Coutts, et al., 2009), we assumed that the periodic changes – from pre-crisis (2006) to crisis period (2012) – in the unemployment rate and GDP were distinct for each country. Thus, by nesting specific period effects for each country at level 2 and the country effect at level 3, we could take into account the specific national economic conditions prior to the start of the crisis, and the degree to which each country was affected by the recession. This modeling allowed us to estimate the specific effect of someone living in, say, Belgium, versus someone living in Spain in 2006 and 2012. Thus, we were able to take into account the very different economic conditions of both countries at the start of the crisis, as well as the way in which both countries responded to the economic crisis. Second, the manner of modeling allowed us to attain an adequate number of higher-level units. Since the ESS collected information regarding depressive symptoms in only two rounds, we did not have a large enough number of units to include the period effect as a separate level of analysis (Stegmueller, 2013). In line with Fairbrother (2014), we considered the clustering of individuals within periods (2 rounds: 2006 and 2012) clustered within countries (20 countries participating in both rounds), thereby attaining sufficient power at level 2 (n = 2 years x 20 countries = 40). The advantage of such national-level time-series cross-sectional data is that we were able to simultaneously model the cross-sectional effect, which explains differences between countries, and longitudinal effects, which explain differences within countries over time (Fairbrother, 2014; Van der Bracht & Van de Putte, 2014). Applied to our model, this meant our main change variable, measured as the difference between national unemployment rate before the crisis (2006) and during the crisis (2012), was introduced in the model at this period level per country-year, while national pre-crisis unemployment rate was located at the highest level, the country level. The time dimension was, therefore, located at level 2, the period level.

In sum, as can be seen in Figure 4, respondents, as units at the individual level (level 1: N men = 24 343; N women = 27 336), were nested within survey years ranging from 2006 to 2012 at the period level (level 2). This was, in turn, nested within countries (level 3). As result, we had a multi-level design of 40 different country years at period level 2, and 20 countries at country level 3. Figure 4 also specifies the different variables that are included in the models, per level. The change effects of the unemployment rate and the GDP (the difference between

2005 and 2011 per country) were included in the model at the period-country level, while in the same model, the cross-sectional effects of unemployment rate and GDP (data of 2005) were at the country level. In this way, the longitudinal effects of the change indicators were orthogonal to the cross-sectional effects (Fairbrother, 2014; Van der Bracht & Van de Putte, 2014). Recently, this method has proven its additional value in two other studies (Buffel, van de Straat, et al., 2015; Van der Bracht & Van de Putte, 2014).

Figure 4: Presentation of the three-level model, with the number of units and the variables per level



Our analyses comprised two parts. First, we will discuss some descriptive results, presented in Table 20 and Table 21. The first table shows the mean score on the depression scale by employment status and conditions within each main employment status category. Table 21 presents the mean scores on depression and the composition of the population of working age in our sample per period, gender, and countries – with the latter grouped according to the strength of the impact of the economic crisis, based on the categorization by Eurofound (2013).

Second, the impact of the crisis was assessed by analyzing the effect of the change in unemployment rate on depressive feelings, using a three-level model (see above). The first model included the change variables – change in the unemployment rate and GDP between 2005 and 2011 – while controlling for the period variable, macroeconomic context variables (the unemployment rate and GDP for 2005), and individual control variables (marital status, age, education, education^2, and equivalent household income). In the second model, we added individual employment status to assess the extent to which the possible relation between economic contraction (as indicated by a strong increase in the unemployment rate) and depression could be ascribed to a composition effect of employment status. In the third model, the conditional factors of employment status were also included, to explore whether, and to what extent, they further explain the possible relation between depression and change in the unemployment rate. Last model used cross-level interactions with change in the unemployment rate to assess whether some employment status conditions are differently related to depression according to an increase in the unemployment rate. If the interaction effects were not significant, they were excluded from the analysis; this enhanced interpretability and provided a more parsimonious model.

The conditional factors of job-seeking or not job-seeking for the unemployed, the different types of non-employment, and working hours, and type of contract for the employed were all included in the models using internal interaction effects as proposed by Mirowsy and Ross (1999). Internal interaction effects can only be carried out when the corresponding main category of the employment status variable is not used in the models as the reference category. Therefore, in Table 22 the unemployed were used as the reference category, and the conditional factors of the employed were included in the models. Likewise, in Table 23, the employed are the reference category, and the conditional factors of the unemployed and the non-employed were added to the models.

The number of countries at the highest level is quite small (N = 20). While there is no consistent rule about the required number of cases, the reliability of estimates depends on several factors, such as the number of country variables, random components and cross level interactions (Bryan & Jenkins, 2013; Stegmueller, 2013). Therefore, no cross-level interactions are included at the country level. In addition, the change variable, operationalized by multiplying country by period consists of 40 units. In line with Bryan and Jenkins, (2013); and Stegmueller (2013) we additionally applied a Bayesian approach to handle with the small number of higher level units. Therefore, all the models were estimated with the statistical software package MLwiN using Markov Chain Monte Carlo (MCMC) estimation procedures, this approach has been proven to be far more robust when also including cross-level interactions (Stegmueller, 2013).

Results

The descriptive results presented in Table 20 show that, in general, the unemployed ($\overline{x}_{men}$ = 7,015; $\overline{x}_{women}$ = 7,353) had the highest score on the depression scale, followed by the non-employed ($\overline{x}$ = 6,170; $\overline{x}$ = 6,466), and then the employed ($\overline{x}$ = 4,697; $\overline{x}$ = 5,407). This pattern is the same for men and women, although some gendered differences occurred within the subcategories. In the group comprising employed women, the self-employed ($\overline{x}$ = 5,260) and the employed working part-time ($\overline{x}_{subst.\ part\text{-}time}$ = 5,308; $\overline{x}_{marg.\ part\text{-}time}$ = 5,330) had the lowest depression scores; among men, those with standard working employment conditions – unlimited contract ($\overline{x}$ = 4,591) and full-time work ($\overline{x}$ = 4,682) – had the lowest depression scores. Unemployed men not actively seeking a job ($\overline{x}$ = 7,572) had a substantially higher score on the depression scale than unemployed looking for work ($\overline{x}$ = 6,813), while among unemployed women the difference was smaller ($\overline{x}_{not\ seeking}$ = 7,527; $\overline{x}_{seeking}$ = 7,282). Employed women with limited contracts ($\overline{x}$ = 5,853) had a similar depression score to that of homemakers ($\overline{x}$ = 5,989), which was not the case for men ($\overline{x}$ = 5,315 and $\overline{x}$ = 5,905, respectively). Homemaking men had more depressive symptoms than those employed under any conditions.

Table 20: Depression scores by employment status and their conditional factors, separately for men and women

Depression (CES-D 8: 0-24)									
	men		women			men		women	
	$\bar{x}$	SD	$\bar{x}$	SD		$\bar{x}$	SD	$\bar{x}$	SD
Unemployed	7,015	(4,572)	7,353	(4,632)	Job seeking	6,813	(4,376)	7,282	(4,598)
					Not seeking a job	7,572	(5,038)	7,527	(4,712)
Non-employed	6,170	(4,456)	6,466	(4,635)	Student	4,897	(3,143)	5,083	(3,594)
					Homemaker	5,905	(4,048)	5,989	(4,359)
					Retired	5,686	(4,278)	6,980	(4,740)
					Sick/disabled	9,273	(5,191)	9,965	(5,406)
Employed	4,697	(3,377)	5,407	(3,821)	Self-employed	4,722	(3,438)	5,260	(3,926)
					Unlimited contract	4,591	(3,289)	5,346	(3,745)
					Limited contract	5,315	(3,645)	5,853	(4,003)
					No contract	4,832	(3,686)	5,458	(4,204)
					Full-time	4,682	(3,366)	5,442	(3,816)
					Substantial part-time	4,963	(3,514)	5,308	(3,823)
					Marginal part-time	4,746	(3,594)	5,330	(3,866)

For the descriptive results presented in Table 21, we relied on the Eurofound (2013) classification of European countries by the size of the effect of the crisis. This classification is based on changes in the unemployment rate and the GDP growth rate.[24] In general, the levels of depression in Europe decreased from 2006 to 2012. There was only an increase in depressive symptoms in the categories strong and stronger affected countries by the crisis. For women, this only applied to the latter category of countries. Examining the country-specific results (not shown in the table), a significant increase in depression from 2006 to 2012 was observed, especially in Spain ($p < 0{,}001$) and Cyprus ($p < 0{,}01$).

In all categories, except for countries in the "weaker" affected category, there was an increase in unemployment, which was reflected by a greater increase in the group of unemployed actively seeking work. The increase in unemployment was only slightly more pronounced

[24] Countries not included in this classification were assigned to a category based on the same indicators.

among men than women. However, there was a significant increase in non-employment among men. In particular, the number of students, retired, and sick or disabled men increased in the last two country categories. By contrast, there was a decreased trend in non-employment for women, which can be especially ascribed to the number of homemakers. The decrease in the number of employed for both men and women, was concentrated among those employed full time. With regard to type of contract employees, this trend was concentrated in those with nonstandard job conditions (those employed with a limited contract or no contract).

Table 21: Descriptives for the variables depression and employment status by period (2006, 2012), gender, and category of countries classified by Eurofound (2013) according to the impact of the crisis

Men																				
Effect of crisis	**Weaker**			**Weak**			**Fairly weak**			**Average**			**Fairly strong**			**Strong**			**Stronger**		
	2006	2012		2006	2012		2006	2012		2006	2012		2006	2012		2006	2012		2006	2012	
Depression ($\bar{x}$)	**5,4**	**4,8**	***	**5,0**	**4,7**	**	**4,8**	**4,8**		**5,2**	**5,0**		**5,7**	**5,4**		**6,0**	**6,2**	*	**4,7**	**5,1**	**
Employment status (%[a])																					
Unemployed	**8,0**	**6,4**	*	**5,5**	**6,4**		**6,0**	**7,4**		**9,1**	**13,3**	**	**6,0**	**10,4**	***	**5,5**	**13,6**	***	**6,2**	**23,2**	***
Job seeking (% yes)	5,2	4,5		3,9	4,8		3,8	6,0	**	6,3	4,6		3,8	8,2	**	3,8	10,6	***	4,4	18,8	***
Non-employed	**17,0**	**18,0**		**14,8**	**17,2**	*	**18,0**	**19,7**	*	**17,3**	**18,0**		**21,6**	**22,0**	*	**16,6**	**18,7**	**	**12,5**	**19,1**	***
Student	4,5	5,6		5,0	5,7		2,1	3,4	*	4,1	3,6		4,0	7,2	***	5,5	5,6		3,3	6,9	**
Homemaker	1,4	1,0		1,8	1,5		2,5	1,6	*	0,9	2,2	**	2,1	2,2		0,3	0,8		1,0	1,2	
Retired	8,8	9,2		5,0	6,1	*	9,5	8,7	*	10,1	10,1		10,3	9,2	*	8,3	9,5	*	4,4	6,4	*
Sick/disabled	2,2	2,2		3,1	4,0		3,9	5,9	*	2,2	2,2		5,2	3,5	***	2,4	2,8		3,9	4,6	*
Employed	**75,1**	**75,6**		**79,7**	**76,4**	**	**76,0**	**72,9**	*	**73,6**	**68,7**	**	**72,5**	**67,6**	***	**77,9**	**67,8**	***	**81,3**	**57,8**	***
Type of contract																					
Self-employed	14,6	12,1	**	12,3	15,0		9,4	11,4	*	13,1	12,8		10,8	11,2		11,7	10,4		20,8	14,2	***
Unlimited contract	51,2	53,3	*	59,0	58,2		56,2	53,1		42,6	43,9		50,6	48,0		52,3	49,3	*	39,8	30,9	***
Limited contract	8,2	9,1		6,6	5,0		8,5	7,8	**	8,5	6,6	**	6,2	6,3	***	9,5	6,1	*	11,2	7,0	*
No contract	1,0	1,2		1,9	1,8		1,8	0,7	*	9,5	5,5	**	4,9	2,2	*	4,5	2,0	*	9,5	5,6	*
Working hours																					
Full-time	70,9	71,3		74,9	71,5		67,4	63,6		67,4	63,6		69,8	64,8		69,1	64,0	**	76,2	64,1	**
Substantial part-time	3,2	3,2		4,0	3,8		6,9	7,4		6,9	7,4		3,6	3,1		2,5	2,4		1,6	1,7	**
Marginal part-time	1,0	1,1		0,7	1,1		1,7	2,0		1,7	2,0	*	0,2	0,8		0,9	1,3	***	0,1	2,0	*

Women																			
Effect of crisis	**Weaker**			**Weak**			**Fairly weak**			**Average**			**Fairly strong**			**Strong**			**Stronger**		
	2006	2012		2006	2012		2006	2012		2006	2012		2006	2012		2006	2012		2006	2012	
Depression ($\bar{x}$)	**6,0**	**5,8**		**5,7**	**5,4**	*****	**5,8**	**5,7**		**6,1**	**5,9**		**6,3**	**6,0**	*****	**7,3**	**6,3**	*******	**5,1**	**5,9**	******
Employment status (%[a])																					
Unemployed	**6,6**	**5,6**		**5,8**	**7,4**	*****	**6,1**	**7,8**	*****	**8,1**	**10,5**	******	**4,1**	**7,5**	*******	**7,0**	**13,0**	*******	**4,2**	**14,1**	*******
Job seeking (% yes)	4,8	4,1		3,9	5,2		4,4	5,6		4,8	8,2	***	2,8	5,0		4,1	10,0	***	2,8	10,7	
Non-employed	**39,4**	**35,0**	*******	**27,2**	**28,3**		**35,1**	**32,5**		**34,4**	**31,0**	*****	**37,5**	**33,2**	*******	**29,1**	**28,4**		**41,9**	**38,9**	*****
Student	4,6	4,8		5,5	5,7		3,5	4,2		4,3	5,2		5,6	6,4	**	4,4	5,2	*	3,6	6,4	***
Homemaker	23,7	19,3	*	20,5	13,9	***	20,5	13,9	***	17,7	22,7		15,7	12,8	*	12,8	11,3	*	34,5	27,2	***
Retired	9,4	9,1		3,6	7,9	***	3,6	7,9	**	10,2	10,7		12,4	10,8		9,3	9,0		2,0	3,2	**
Sick/disabled	1,6	1,9		3,7	4,4		4,8	6,6	**	2,2	2,4		3,7	3,2		2,6	3,0		1,8	2,1	
Employed	**53,9**	**59,3**	*******	**67,0**	**64,3**	*****	**58,8**	**59,7**		**57,5**	**58,4**		**58,4**	**59,3**		**63,9**	**58,5**	*******	**53,9**	**47,1**	*******
Type of contract																					
Self-employed	6,6	6,8		5,2	4,9		3,6	4,7		4,9	5,7		3,5	4,2		6,6	5,8		5,9	5,1	
Unlimited contract	39,3	44,0		52,4	51,9		45,8	45,1		36,1	40,3		45,7	46,4		45,0	46,2	***	30,2	28,3	*
Limited contract	6,5	7,5		8,2	6,4		7,3	8,6	**	9,5	8,1	*	6,4	6,6		9,1	4,1	*	10,8	7,2	
No contract	1,4	1,1		1,2	1,0		2,2	1,2		7,0	4,5	**	2,8	2,1	*	3,3	2,4	**	7,0	6,4	
Working hours																					
Full-time	34,7	39,1		48,2	50,0	***	31,1	32,9		50,0	50,6		42,9	43,5		57,6	51,7		39,5	28,9	***
Substantial part-time	14,0	15,1		14,8	11,3	***	20,8	20,6		6,4	6,7		11,7	11,7		5,4	4,2		10,3	13,3	***
Marginal part-time	5,2	5,2		4,0	3,1	*	6,9	6,2		1,1	1,1		3,8	4,1		0,9	2,6	***	4,0	4,8	*

In Table 22, the impact of the strength of the crisis is assessed by analyzing the effect of change in the unemployment rate on depressive feelings. In the first model, the period effect shows that in 2012 (b_{men} = -0,511[0,095]; b_{women}= -0,560[0,136]) the likelihood of being depressed was significantly lower than in 2006, which is also observed in the descriptive results. There was also a context effect: in countries with a high GDP per inhabitant pre-crisis (2005), both men (b = -0,050[0,013]) and women (b = -0,054[0,012]) were less likely to be depressed than men and women in countries with a lower GDP. With regard to the crisis effect, we found a positive relation between depressive feelings and change in the rate of unemployment. In countries with a high increase in the unemployment rate from 2005 to 2011, women (b = 0,047[0,019]) and especially men (b = 0,053[0,013]) had a higher likelihood of being depressed, controlling for period, household income, age, education, marital status, and the country's economic conditions before the crisis. We carried out the analyses once with men and women together. Via an interaction effect with gender and change in unemployment, we found that the crisis effect was significantly stronger among men (after also controlling for individual employment status). This positive effect of an increase in unemployment on depression was also significantly more pronounced for the middle-age category (35–49 years). (For the results of the analysis with men and women pooled, see Table 23.)

When we took individual employment status into account in Model 2, the relation between depression and change in the unemployment rate attenuated, but remained significant for both men (b = 0,039[0,013]) and women (b = 0,041[0,020]). Especially among men, the crisis effect can partly be ascribed to the increase in the number of unemployed or non-employed men. In the descriptive results, we found a large increase in the number of unemployed and non-employed men in countries strongly affected by the crisis (Table 21), and these categories had a higher mean score on the depression scale (see Table 20).

Table 22: Depression regressed on change in unemployment rate, individual employment status, and different work conditions

	Men												Women											
	Model 1			Model 2			Model 3			Model 4			Model 1			Model 2			Model 3			Model 4		
	b	SE	sig.	b	SE	sig.	b	SE	sig.	b	SE	sig.	b	SE	sig.	b	SE	sig.	b	SE	sig.	b	SE	sig.
Intercept	5,843	(0,638)	***	7,246	(0,637)	***	7,233	(0,646)	***	7,244	(0,646)	***	6,690	(0,591)	***	7,575	(0,598)	***	7,586	(0,601)	***	6,310	(0,395)	***
Context variables																								
GDP	-0,050	(0,013)	***	-0,047	(0,012)	***	-0,046	(0,013)	***	-0,047	(0,013)	***	-0,054	(0,012)	***	-0,053	(0,012)	***	-0,053	(0,012)	***	-0,053	(0,012)	***
Unemployment rate	0,041	(0,049)		0,035	(0,048)		0,038	(0,049)		0,038	(0,049)		0,033	(0,045)		0,031	(0,045)		0,031	(0,045)		0,030	(0,046)	
Period variables																								
Period (ref. 2006)																								
2012	-0,511	(0,093)	***	-0,549	(0,090)	***	-0,539	(0,089)	***	-0,542	(0,089)	***	-0,560	(0,136)	***	-0,573	(0,139)	***	-0,570	(0,138)	***	-0,572	(0,138)	***
Change in GDP	0,015	(0,012)		0,017	(0,012)		0,017	(0,012)		0,018	(0,012)		0,026	(0,018)		0,027	(0,018)		0,027	(0,018)		0,028	(0,018)	
Change in unemployment rate	0,053	(0,013)	***	0,039	(0,013)	**	0,039	(0,013)	**	0,037	(0,018)	*	0,047	(0,019)	*	0,041	(0,020)	*	0,042	(0,020)	*	0,045	(0,026)	
Individual variables																								
Age (ref. 35–49 years)																								
20–34 years	-0,607	(0,062)	***	-0,663	(0,062)	***	-0,694	(0,062)	***	-0,697	(0,062)	***	-0,496	(0,064)	***	-0,568	(0,065)	***	-0,600	(0,065)	***	-0,598	(0,065)	***
50–64 years	0,183	(0,057)	**	-0,052	(0,059)		-0,063	(0,059)		-0,060	(0,059)		0,214	(0,060)	***	0,124	(0,061)	*	0,127	(0,061)	*	0,129	(0,061)	*
Employment status (ref. unemployed)																								
Non-employed				-0,522	(0,096)	***	-0,533	(0,096)	***	-0,560	(0,104)	***				-0,549	(0,098)	***	-0,555	(0,098)	***	-0,553	(0,105)	***
Employed				-1,485	(0,087)	***	-1,598	(0,091)	***	-1,600	(0,098)	***				-1,053	(0,096)	***	-1,100	(0,101)	***	-1,085	(0,107)	***
Type of contract (ref. unlimited)																								
x limited							0,504	(0,092)	***	0,503	(0,092)	***							0,427	(0,096)	***	0,422	(0,096)	***
x no contract							0,325	(0,135)	*	0,326	(0,135)	*							0,014	(0,152)		0,001	(0,153)	
x self-employed							0,049	(0,073)		0,052	(0,073)								-0,238	(0,113)	*	-0,239	(0,113)	*
Working hours (ref. full-time)																								
x marginal part-time							-0,034	(0,224)		-0,158	(0,237)								-0,055	(0,132)		-0,116	(0,136)	
x substantial part-time							0,336	(0,126)	**	0,308	(0,128)	*							0,046	(0,082)		0,036	(0,084)	
Cross-level interactions																								
Non-employed x change in unemployment										0,021	(0,019)											0,001	(0,021)	
Employed x change in unemployment										-0,006	(0,016)											-0,014	(0,021)	
x marginal part-time x change in unemployment										0,091	(0,045)	*										0,060	(0,030)	*
x substantial part-time x change in unemployment										0,038	(0,032)											0,012	(0,021)	
Variance (3) Country	0,299	(0,101)	**	0,294	(0,099)	**	0,304	(0,102)	**	0,303	(0,101)	**	0,223	(0,085)	**	0,221	(0,085)	**	0,225	(0,085)	**	0,226	(0,086)	**
(2) Period	0,016	(0,012)		0,014	(0,011)		0,013	(0,011)		0,013	(0,011)		0,059	(0,026)	*	0,062	(0,027)	*	0,061	(0,027)	*	0,061	(0,027)	*
(1) Individual	12,725	(0,115)	***	12,512	(0,114)	***	12,489	(0,113)	***	12,486	(0,113)	***	15,511	(0,133)	***	15,419	(0,132)	***	15,403	(0,132)	***	15,401	(0,132)	***
ρ	0,024			0,024			0,025			0,025			0,018			0,018			0,018			0,018		
-2LL	131 079,533			130 668,010			130 623,614			130 616,936			152 606,276			152 445,216			152 417,054			152 413,236		

* $p < 0{,}050$ ** $p < 0{,}010$ *** $p < 0{,}001$; *N* individual men = 24 343 & women = 27 336; *N* period (*country) = 40; *N* country = 20.

All models controlled for education, education², marital status and income.

ρ Variance at both higher levels: 3 and 2 (country + period) = $(\sigma^2_{country} + \sigma^2_{period})/ (\sigma^2_{country} + \sigma^2_{period} + \sigma^2_{individual})$.

Table 23: Depression regressed on change in unemployment, with and without controlling for individual employment status, men and women together

	Model 1			Model 2			Model 3			Model 4		
	b	SE	sig.	b	SE	sig.	b	SE	sig.	b	SE	sig.
Intercept	6,247	(0,580)	***	6,018	(0,583)	***	5,904	(0,581)	***	5,882	(0,582)	***
Context variables												
GDP 2005	-0,054	(0,011)	***	-0,052	(0,011)	***	-0,051	(0,011)	***	-0,051	(0,011)	***
Unemployment rate 2005	0,012	(0,044)		0,037	(0,045)		0,034	(0,045)		0,033	(0,045)	
Period variables												
Period (ref. 2006)												
2012	-0,370	(0,089)	***	-0,557	(0,109)	***	-0,580	(0,110)	***	-0,580	(0,110)	***
Change in GDP				0,021	(0,014)		0,023	(0,015)		0,023	(0,015)	
Change in unemployment rate				0,051	(0,015)	***	0,042	(0,016)	**	0,069	(0,017)	***
Individual variables												
Gender (ref. men)	0,522	(0,034)	***	0,522	(0,034)	***	0,522	(0,034)	***	0,447	(0,034)	***
Age (ref. 35-49 years)												
20-34 years	-0,550	(0,045)	***	-0,548	(0,045)	***	-0,620	(0,045)	***	-0,595	(0,046)	***
50-65 years	0,197	(0,041)	***	0,198	(0,041)	***	0,050	(0,042)		0,077	(0,043)	
Employment status (ref. employed)												
Unemployed							1,267	(0,065)	***	1,260	(0,065)	***
Non-employed							0,702	(0,042)	***	0,701	(0,042)	***
Cross-level interactions												
Women x change in unemployment										-0,019	(0,006)	**
Age 20-34y x change in unemployment										-0,024	(0,010)	*
Age 50-65y x change in unemployment										-0,027	(0,010)	**
Variance (3) Country	0,229	(0,086)	**	0,238	(0,084)	**	0,236	(0,083)	**	0,236	(0,083)	**
(2) Period	0,068	(0,025)	**	0,040	(0,016)	*	0,041	(0,017)	*	0,040	(0,016)	*
(1) Individual	14,252	(0,089)	***	14,252	(0,089)	***	14,106	(0,088)	***	14,102	(0,088)	***
ρ	0,020			0,019			0,019			0,019		
-2LL	284 079,468			284 070,797			283 540,084			283 526,599		

* $p < 0{,}050$ ** $p < 0{,}010$ *** $p < 0{,}001$; *N* individual = 51 679 (men and women pooled); *N* period (*country) = 40; *N* country = 20.

All models controlled for education, education², marital status, and income.

ρ Variance at both higher levels: 3 and 2 (country + period) = $(\sigma^2_{country} + \sigma^2_{period})/ (\sigma^2_{country} + \sigma^2_{period} + \sigma^2_{individual})$.

In Model 3, the conditional factors of the employed were added via internal interaction effects. We did not find a composition effect from the type of contract and working hours, as the effect of change in the unemployment rate on depression did not really vary between men (b = 0,039[0,013]) and women (b = 0,042[0,020]). Employed men and women with a limited contract (b_{men} = 0,504[0,092]; b_{women} = 0,427[0,092]) and employed men with no contract (b = 0,325[0,135]) have a higher likelihood of reporting depressive symptoms compared with the employed with an unlimited contract.

Only self-employed women (b = -0,238[0,113]) were less likely to be depressed when compared with the employed with standard job conditions (unlimited contract and full-time). With regard to working hours, there was only a significant relation with depression among men; men who worked substantially part-time (b = 0,336[0,126]) were more likely to be depressed than employed men with standard job conditions.

In Model 4, a significant cross-level interaction among the employed men and women was found between working hours and the crisis effect. Although the main effect of being a marginal part-time worker (compared with a full-time worker) on depression was not significant, we found that in countries with a high increase in unemployment, marginal part-time working men (b = 0,091[0,045]) and women (b = 0,060[0,030]) were more likely to be depressed than if there had been no increase or a decrease in a country's unemployment rate.

In Table 24, the unemployed and non-employed were compared with the employed. The unemployed (b_{men} = 1,485[0,087]; b_{women} = 1,053[0,096]) and the non-employed (b = 0,963[0,065]; b = 0,504[0,056]) were more likely to be depressed than the employed, and both differences were more pronounced among men (Model 1).

In Model 2, after taking the conditional factors of the unemployed and non-employed into account, the effect of change in the unemployment rate on depression for both men and women was almost unaltered, and even rose slightly (b_{men} = 0,039[0,013] Model 1 to b = 0,041[0,013] Model 2; b_{women} = 0,041[0,020] to b = 0,044[0,019]). Only among the male unemployed was there a difference in depression depending on whether or not the individual was actively seeking a job. In particular, discouraged workers had a higher likelihood of being depressed (b = 0,632[0,171]). Within the group of the non-employed, students (b_{men} = -0,526[0,144]; b_{women} = -0,774[0,150]) had a lower likelihood of being depressed than the

retired, while those inactive because of sickness or disability had a higher likelihood of being depressed (b = 3,367[0,147]; b = 3,268[0,161]).

Finally, in Model 3, the relations between depression and some categories of the unemployed and the non-employed were modified by the country's change in unemployment rate. With regard to men, in the previous model (Model 2), the results show that there was a significant difference between the unemployed who were seeking a job and those who were not, with the latter being more depressed. However, in countries that were strongly affected by the crisis – i.e., those with a high increase in unemployment rate – this difference became smaller. In these countries, unemployed men actively seeking work were more depressed (b = 0,115[0,034]) during the crisis, and those who were not seeking work were less depressed (b = -0,085 [0,031]). With regard to the non-employed, homemaking men (b = 0,151[0,054]) and women (b = 0.078[0.028]) were more depressed in countries with a higher increase in the unemployment rate. Furthermore, male students (b = 0,067[0,030]) and men who were non-employed because of sickness or disability (b = 0,075[0,035]) also had a higher likelihood of being depressed in countries that were strongly hit by the crisis.

By relying on the Jackknife procedure, we have checked for influential countries by deleting every country once from the analysis (Rodgers 1999.) The results for the full models of Table 22 (Model 4) and Table 24 (Model 3) are shown in the appendix 15 (a-h). We can conclude that the above mentioned effects of the change variables as well as of the cross-level interaction terms with employment status and work conditions are quite stable. There are only a few effects that become insignificant or, visa verse, significant; when one country was excluded (these effects are colored gray). For example, when Germany, France, Ireland or Poland are excluded from men's sample and Cyprus, the Netherlands and Sweden from women's sample the interaction effect between change in unemployment rate and marginal part-time work is only marginal significant or even insignificant (Appendix 15 a-c). Furthermore, the main effect of change in unemployment rate in Model 3 of Table 24; which is now that of the reference category, namely the employed, also becomes significant among women, when the UK, Hungary, the Netherlands, Norway, Portugal, Germany or Bulgaria are excluded (Online available). The changes in the sizes of the effects are however minor.

Table 24: Depression regressed on change in the unemployment rate, individual employment status, and the subcategories of the unemployed and the non-employed

	Men									Women								
	Model 1			Model 2			Model 3			Model 1			Model 2			Model 3		
	b	SE	sig,	b	SE	sig,	b	SE	sig,	b	SE	sig,	b	SE	sig,	b	SE	sig,
Intercept	5,761	(0,632)	***	5,654	(0,611)	***	5,671	(0,613)	***	6,522	(0,591)	***	6,515	(0,566)	***	6,560	(0,568)	***
Period variables																		
Period (ref. 2006)	-0,549	(0,090)	***	-0,529	(0,089)	***	-0,532	(0,090)	***									
2012										-0,573	(0,139)	***	-0,582	(0,133)	***	-0,587	(0,131)	***
Change in GDP	0,017	(0,012)		0,016	(0,012)		0,017	(0,012)		0,027	(0,018)		0,026	(0,018)		0,027	(0,017)	
Change in unemployment	0,039	(0,013)	**	0,041	(0,013)	**	0,038	(0,013)	**	0,041	(0,020)	*	0,044	(0,019)	*	0,038	(0,020)	
Individual variables																		
Age (ref. 35–49 years)																		
20–34 years	-0,663	(0,062)	***	-0,490	(0,062)	***	-0,489	(0,062)	***	-0,568	(0,065)	***	-0,399	(0,065)	***	-0,394	(0,065)	***
50–65 years	-0,052	(0,059)		-0,038	(0,059)		-0,039	(0,059)		0,124	(0,061)	*	0,063	(0,062)		0,065	(0,062)	
Employment status (ref. employed)																		
Unemployed (ref. not job seeking)	1,485	(0,087)	***	1,986	(0,152)	***	2,150	(0,163)	***	1,053	(0,096)	***	1,199	(0,163)	***	1,202	(0,173)	***
x seeking a job				-0,632	(0,171)	***	-0,876	(0,186)	***				-0,206	(0,188)		-0,213	(0,202)	
Non-employed (ref. retired)	0,963	(0,065)	***	0,469	(0,092)	***	0,493	(0,093)	***	0,504	(0,056)	***	0,431	(0,098)	***	0,443	(0,099)	***
x student				-0,526	(0,144)	***	-0,591	(0,147)	***				-0,774	(0,150)	***	-0,769	(0,154)	***
x homemaker				0,310	(0,200)		0,178	(0,206)					-0,188	(0,109)		-0,256	(0,111)	*
x sick/disabled				3,367	(0,147)	***	3,290	(0,153)	***				3,268	(0,161)	***	3,344	(0,165)	***
Cross-level interactions																		
Unemployed x change in unemployment							-0,085	(0,031)	**							0,002	(0,036)	
x seeking for job x change in unemployment							0,115	(0,034)	***							0,004	(0,041)	
Non-employed x change in unemployment							-0,035	(0,021)								-0,035	(0,026)	
x student x change in unemployment							0,067	(0,030)	*							0,025	(0,035)	
x homemaker x change in unemployment							0,151	(0,054)	**							0,078	(0,028)	**
x sick/disabled x change in unemployment							0,075	(0,035)	*							-0,062	(0,048)	
Variance (3) Country	0,294	(0,099)	**	0,274	(0,092)	**	0,276	(0,093)	**	0,221	(0,085)	**	0,203	(0,078)	**	0,206	(0,078)	**
(2) Period	0,014	(0,011)		0,013	(0,011)		0,014	(0,011)		0,062	(0,027)	*	0,055	(0,025)	*	0,054	(0,024)	*
(1) Individual	12,512	(0,114)	***	12,170	(0,110)	***	12,158	(0,110)	***	15,419	(0,132)	***	15,073	(0,129)	***	15,064	(0,129)	***
ρ	0,024			0,023			0,023			0,018			0,017			0,017		
-2LL	130 668,008			129 991,054			129 967,850			152 445,216			151 823,054			151 804,966		

* $p < 0{,}050$ ** $p < 0{,}010$ *** $p < 0{,}001$; N individual men = 24 343 & women = 27 336; *N* period (*country) = 40; *N* country = 20.

All models controlled for education, education², marital status, income, and macroeconomic context variables (unemployment rate and GDP).

ρ Variance at both higher levels: 3 and 2 (country + period) = $(\sigma^2_{country} + \sigma^2_{period})/ (\sigma^2_{country} + \sigma^2_{period} + \sigma^2_{individual})$.

Discussion

This study examined the impact of the current economic crisis on depressive feelings in Europe via employment status and conditions. Change in the unemployment rate was taken as the main indicator of the strength of the crisis. Our research yielded two main findings.

First, we did establish increases in the levels of depression in countries that have been strongly affected by the economic crisis, such as Cyprus and Spain. This finding is in line with a number of single-country studies (Economou et al., 2013; Gili et al., 2013; Madianos et al., 2011). However, this finding could not be extrapolated to the European region as a whole. In fact, a decreasing trend in depressive feelings was found between 2006 and 2012 in most European countries. Thus, the impact of the economic crisis in Europe is country-specific. The observed crisis effect was significantly stronger for men and for those between 35 and 49 years of age. Therefore, the gender gap in depression, with women having more depressive feelings (Van de Velde et al., 2010) than men, decreased in the countries hit hardest by the crisis. This is in line with the results of Eurofound, based on the European Quality of Life survey data (Eurofound, 2012). That survey reported that mental well-being has remained quite stable in Europe – although it has worsened in some specific countries (e.g., Spain, Ireland, Greece, and Hungary) – and the gender gap has slightly decreased. Our results also support the previous findings, mostly from single-country studies, that men are at an increased risk of depression and suicidality during times of economic adversity (Artazcoz et al., 2004; Barr et al., 2012; Dunlop & Mletzko, 2011; Uutela, 2010; Wahlbeck & McDaid, 2012).

Second, as hypothesized, the observed crisis effect on depressive symptoms is not just a reflection of an increase in unemployment and job insecurity. In fact, we found that changes in the prevalence of depressive feelings can only partly be ascribed to the changed composition of the working-age population. In countries hit hardest by the crisis, unemployment, non-employment, and the subsequent feelings of depression became more prevalent. However, our results also showed that some conditions of employment and subcategories of both unemployment and non-employment were differently related to depression, depending on the strength of the economic crisis. We found that the relation between part-time work and depression was moderated by the recession: In countries characterized by a high increase in unemployment, marginal part-time working men and women were more likely to be depressed than in countries having no increase in unemployment. This can possibly be explained by the fact that in countries with high

unemployment, marginal part-time work is somewhat forced upon individuals as the only way to remain employed in a shrinking Labor-market. Among women in particular, an additional explanation might be found in the additional worker effect (Bettio, 2012). These women were often full-time caregivers before the crisis, but were forced into the Labor-market as part-time workers by family economic needs (De Moortel, Vandenheede, & Vanroelen, 2014) or because of a partner's job insecurity. However, we need to be cautious with this finding, as an additional sensitivity analysis applying the Jackknife Procedure (See appdendix 14) showed that the moderation effect of change in unemployment rate on the relation between part-time work and depression is dependent on a number of specific countries included in the model. It is possible that some countries are special cases or that the number of countries and country-periods are not enough to find stable results. Therefore, we recommend further research focusing on the effect of specific national policies on flexibalization of the Labor-market, and how this may be affected by the crisis.

In countries strongly affected by the crisis, the difference between unemployed men actively looking for a job and those not looking – with the latter being the more depressed – becomes smaller, because men actively seeking work were more depressed, while the discouraged workers were less depressed. Both formulated hypotheses are thus supported, but each only by a subgroup of the unemployed. In countries with a high increase in unemployment, those looking for a job are more depressed, probably because their chances of finding a new job are substantially lessened. By contrast, the discouraged workers are less depressed, possibly because they are more easily reconciled to their situation because it is experienced by many others, and, therefore, might be less stigmatizing during a recession (Clark et al., 2010; Clark, 2003).

Last, and as we partly expected, male students, men non-employed due to disability or sickness, and homemaking men and women are more depressed in countries with an increase in unemployment. Pessimistic Labor-market prospects due to high levels of unemployment and underemployment among youth – for example, involuntary part-time work, temporary jobs, and over-education – may bring about uncertainty and anxiety among students. In addition, an increase in student numbers was observed especially in countries hardest hit by the crisis, perhaps because economic contraction may encourage students to prolong their education (Bell & Blanchflower, 2011). The finding that the disabled are more depressed can possibly be ascribed to reduced disability benefits and stricter criteria for sickness insurance,

which could strengthen the health selection effect on those non-employed because of sickness or disability.

Finally, some limitations to this study should be acknowledged. First, the design of the study does not make it possible to draw any certain conclusions about causation or selection. However, we have attempted in various ways to take into account possible selection bias and problems of endogeneity. As was the case in previous cross-sectional studies, we sought to reduce the possible effect of selection by controlling for relevant confounding factors, such as education, income, and marital status. Previous depression is not predictive of becoming inadequately employed, but it does have an effect on the unemployed (Dooley et al., 2000). By making the distinction between the unemployed and the non-employed due to illness or disability, we could partially take into account the possible reverse causality in unemployment (Beland, Birch, & Stoddart, 2002); however, not all selection bias is corrected in this way. Even if initial job loss is not caused by health problems, selection bias can occur because unemployment may have a detrimental impact on health (Paul & Moser, 2009), and, subsequently, the unhealthy unemployed are less likely to find a new job than the more healthy unemployed (Stewart, 2001). The models also took into account the country's unemployment rate. In this way, we controlled for potential between-country differences in selection bias related to between-country variation in the proportions of the unemployed (Buffel, Dereuddre, et al., 2015). In addition, we tested interaction effects between the individual employment status and the national proportion of the unemployed. We did this because, in line with previous research (Clark et al., 2010), we could expect that in countries with low unemployment, unemployment would be less randomly distributed, and as a result would be more frequently considered a personal characteristic or a direct or indirect consequence of health selection (Mackenbach, 2012a). But these interactions were not significant: The unemployed were not differently related to depression according to the national level of unemployment. With the available data, we could not as yet give a definitive answer concerning the direction of the relations, and it is possible that both selection and causation processes were present. However, based on the meta-analysis of Paul and Moser (2009), which also included information from longitudinal studies, we know that the mental health selection effect on unemployment and job search is relatively weak.

Second, it is very difficult to define recession effects on health-related outcomes, such as depression. Our strength was that we directly incorporated macroeconomic change measurements – changes in the unemployment rate and GDP per inhabitant from 2005 to

2011 – while simultaneously controlling for the macroeconomic condition of each country before the crisis and for period effects (2006 versus 2012). However, there are only two waves of the ESS with information about depression available. As a result, we could only control for the period 2006 versus that of 2012. Therefore, our analyses are not completely "(time) trend adjusted."

Further, the economic crisis may also have indirect long-term consequences for mental health through its effect on public policies (de Belvis et al., 2012). Therefore, in a future study, we intend to examine the effect on depression of a country's welfare state institutions and austerity policies in response to the crisis, as well as the relation between employment status and depression. There are already some indications that active Labor-market programs, strong social safety nets, and mental health prevention campaigns mitigate the negative mental health effects of recession (Cooper, 2011; Stuckler, Basu, Suhrcke, Coutts, et al., 2009; Vuori, Silvonen, Vinokur, & Price, 2002). Conversely, austerity policies and cost containment in the health sector might lead to a deterioration in health, and health care access and provisions (Gene-Badia et al., 2012; Karanikolos, Mladovsky, et al., 2013). The roll-out of activation programs and stricter entitlement criteria for disability benefits may also influence the relation between non-employment and depression (Blomqvist et al., 2014) by moving previously inactive people back to the Labor-market. Moreover, characteristics of the welfare state, such as the degree of decommodification (the disability and unemployment benefit structure and its replacement rate and duration of payment) and defamiliarization (child care provisions and parental leave), may also influence the relation between depression and individual employment status (Paul & Moser, 2009). In addition, it is argued in some literature that women are more vulnerable to austerity measures (Bettio, 2012; Karamessini & Rubery, 2013). Therefore, gender differences in the indirect effects of the recession can be expected and should also be examined in future research.

In conclusion, a positive effect of a strong increase in unemployment – as an indicator of the strength of the economic crisis – on depression is found, taking each country's pre-crisis economic conditions into account. The observed changes in depressive feelings according to the strength of the crisis are not just simply a reflection of a variation in individual employment status and conditions, nor of variation in the levels of other individual risk factors for depression (age, household income, marital status, and education). Moreover, we have indications that in countries strongly affected by the present crisis, the recession is

having differential effects on depression depending on gender, age, employment conditions (working hours), and certain subcategories of the unemployed and the non-employed.

CHAPTER 10

Study 4. Employment status and mental health care use in times of economic contraction: a repeated cross-sectional study in Europe, using a three-level model

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Framed within the recent economic crisis, in this study we investigate the medical mental health care use of the unemployed compared with that of the employed in Europe, and whether the relation between employment status and mental health care use varies across macroeconomic conditions. We examine whether the macroeconomic context and changes therein are related to mental health care use, via their impact on mental health, or more directly, irrespective of mental health. We use data from three waves of the Eurobarometer (2002, 2005/2006, and 2010), which has a repeated cross-sectional and cross national design. Linear and logistic multilevel regression analyses are performed with mental health, contacting a general practitioner, and contacting a psychiatrist for mental health problems as dependent variables. The multilevel design has three levels (the individual, the period-country, and the country), which allows us to estimate both longitudinal and cross-sectional macro-effects. The macroeconomic context and changes therein are assessed using national unemployment rates and growth rates in Gross Domestic Product (GDP). The mean unemployment rate is negatively related to mental health, although for women, this effect only applies to the employed. Among women, no relation is found between changes in the macroeconomic context and mental health. The unemployment rate, and changes in both the unemployment rate and the real GDP growth rate, are associated with men's care use, regardless of their mental health, whereas this does not hold for women. In countries with an increase in the unemployment rate, both unemployed and employed men tend to medicalize their problems more by contacting a general practitioner, irrespective of their mental health, while the likelihood of contacting a psychiatrist is lower among employed men. Our findings stress the importance of taking the macroeconomic context and changes therein into account when studying the mental health care use of unemployed people compared with the employed, in particular among men. Moreover, it is important to make the distinction between primary and specialized medical care use, as the impact of macroeconomic conditions is dependent on the type of care, which also applies when controlling for mental health.

Introduction

The economic crisis has hit Europe since 2008, resulting in rising unemployment rates, worsening of working conditions and losses of income (Eurofound, 2013; Green, 2014). Recent research in some countries, such as Spain and Greece, has shown that the recession has increased the frequency of health problems, especially with regard to mental health (Economou et al., 2013; Gili et al., 2013; Kentikelenis et al., 2011; Madianos et al., 2011). In addition, austerity policies might adversely affect health and health care provision (Kyriopoulos et al., 2014; McKee et al., 2012). Vulnerable groups, such as the unemployed, are found to be the most at risk of deterioration in health and health care access (Kentikelenis et al., 2011; Kyriopoulos et al., 2014). However, also the employed seem to perceive more stress and a reduced mental well-being due to increasing job insecurity and involuntary part-time work (Eurofound, 2013; Green, 2014). The last decades, a trend of flexibilization on the Labor-market has already led to a heightened sense of job insecurity (Hartley, 1991; Sparks, Faragher, & Cooper, 2001). This increase in job insecurity may have been further exacerbated by the crisis.

The rise in unemployment, one of the most pressing consequences of the recent economic crisis, makes it particularly important to understand the consequences of unemployment for mental health and its relation with professional care use. Evidence has consistently shown that unemployment is associated with increased depressive feelings (Bartley, 1994; Paul & Moser, 2009). However, the relation between employment status and care seeking is less straightforward. Some studies have found that the unemployed are less inclined to seek specialized care than the employed (Alonso et al., 2007; Gouwy, 2008), whereas others have reported greater health care use among the inactive, irrespective of actual (mental) health status (Bijl & Ravelli, 2000; Buffel, Dereuddre, et al., 2015; Yuen & Balarajan, 1989). In addition, several previous studies use mental health care or psychotropic drug use merely as a proxy for mental health problems (Kuhn, 2007; Morris & Cook, 1991; Schmitz, 2011).

There is little recent research that has investigated whether the relation between employment status and mental health care use varies across macroeconomic conditions. Besides, the limited work that has been done on this theme lacks a strong theoretical base (Catalano et al., 1985). Only in the 1980s, a few studies were published that related aggregated economic conditions to individual help seeking for emotional problems (Catalano et al., 1985; Dooley &

Catalano, 1984). However, these studies did not evaluate recession and major economic changes, because their data was collected in the USA during a period of normal economic fluctuations. The most obvious difference between the context of these American studies and the current European context is that there actually is a recession (Suhrcke & Stuckler, 2012). The biggest impact has been felt in Spain and Greece, where unemployment rates more than doubled from 2006 to 2011 (OECD). Other differences in comparison to these previous studies include a greater awareness of mental health problems (Schomerus et al., 2012) and a slight decrease in stigmatization, partly due to anti-stigma campaigns (Paykel, Hart, & Priest, 1998). In many countries, the mental healthcare system has been reformed by a process of deinstitutionalization (Nome & Holsten, 2011; Rutz, 2001) and provisions have increased for mental health care outside of institutions (Nome & Holsten, 2011).

In this paper, we investigate medical care use for mental health problems by the unemployed compared with the employed in Europe. We assess the impact of the macroeconomic context and changes therein on mental health care use, and whether the relation between employment status and mental health care use varies across these macroeconomic conditions. Contacting a general practitioner (GP) or a psychiatrist for emotional or psychological problems is used as an indicator of medical care use for mental health problems. Macroeconomic conditions refer to the national economic context as well as changes to this context over three periods (2002, 2005/2006, and 2010). Furthermore, in the current study, attention is also paid to potential age and gender effects.

The most generic way to describe the state of a country's economy is by using the unemployment rate and the real Gross Domestic Product (GDP) growth rate (Eurofound, 2013). The unemployment rate and real GDP growth reflect the economic cycle and thus the economic and Labor-market conditions in a country (A. Economou et al., 2008; Gerdtham & Ruhm, 2006; Ruhm, 2000). The European Commission also uses these indicators to classify European countries based on the size effect of the recent crisis (Eurofound, 2013).[25] Changes in unemployment rates in particular are a relevant measure to capture the economic turmoil and insecurity faced by the population during periods of economic uncertainty, and are close

[25] However, we recognize that there are other indicators of the macroeconomic context, which are also appropriate as macroeconomic proxies. For example, the notification rate of plant closings and mass layoffs, as was used by Gerdtham and Johannesson (2005), is also useful as a good indicator of the Labor-market condition. Unfortunately, this information is not widely available (Gerdtham & Ruhm, 2006), which is quite problematic given the number of countries and periods included in our study.

to the everyday experience of individuals (Stuckler, Basu, Suhrcke, Coutts, et al., 2009). Additionally, the technical definition of a recessionary episode is based on changes in the real GDP growth rate (Dicrectorate general for Employment, 2010).

Background

Macroeconomic context and changes, employment status, and professional care seeking

Relevant theoretical perspectives that combine macro-socioeconomic conditions with help seeking for mental health problems are scarce and date back to the 1980s. We summarize the most important perspectives, supplement them with more recent insights and try to apply them, as among the first to do so, to the relation between employment status (unemployed versus employed) and both general and specialized mental health care use. Two broad strands of theoretical perspectives can be distinguished. The first suggests there is an indirect relation between macroeconomic conditions and mental health care use via mental health, while the second strand assumes a direct relation with mental health care use, irrespective of whether there is a relation between macroeconomic conditions and mental health. Therefore, we name the first group "indirect mechanisms" and the second "direct mechanisms".

(1) Indirect mechanisms

The first class of explanations assumes that economic contraction increases the incidence of mental health problems, and consequently mental health care use. Catalano and Dooley (Catalano & Dooley, 1977) refer to these as "provocation explanations". These perspectives are partly based on the need hypothesis (McAlpine, 2007), which states that health care use is mainly need based: those with a higher need for care will also use it more. Provocation explanations assume that the relation between economic conditions and help seeking for emotional problems is indirect, with actual mental health as a mediating factor (Catalano & Dooley, 1977; Dooley & Catalano, 1984). Stressful conditions that occur more frequently during recession or in a weak economy – such as being unemployed or suffering financial problems – are important risk factors for mental health problems and in turn increase the probability of seeking help (Catalano & Dooley, 1977). Based on these ideas, we propose the following hypotheses:

Hypothesis 4.1: If the macroeconomic context is poor and/or there is economic contraction, mental health will become worse, which will result in correspondingly higher mental health care use.

Hypothesis 4.2.a: Provocation mechanisms may be stronger among the unemployed (Catalano & Dooley, 1977), as they have fewer resources to anticipate and deal with stressful conditions.

However, even the anticipation of stressful conditions, such as becoming unemployed, and economic instability in itself are argued to negatively affect a person's mental health (Dooley & Catalano, 1984). The recent economic recession has also led to a worsening of working conditions for those who still have a paid job (Eurofound, 2013). In addition, high unemployment rates – and rising unemployment in particular – are the most significant predictors of job insecurity (Dixon et al., 2013; Esser & Olsen, 2012). Previous studies have already shown that job insecurity, involuntary part-time work, and temporary contracts are related to a decrease in well-being and mental health status (Bambra, Lunau, Van der Wel, Eikemo, & Dragano, 2014; De Moortel, Vandenheede, Muntaner, et al., 2014; De Witte, 1999; Ferrie, Shipley, Stansfeld, & Marmot, 2002; Virtanen et al., 2008). As a result, economic contraction might also be detrimental for the mental health of the employed.

Hypothesis 4.2.b: Because the macroeconomic conditions have led to a worsening of working conditions, we can expect – contrary to hypothesis 4.2.a – that provocation mechanisms will be more pronounced among the employed

In addition, we have to note that several population surveys have indicated the relation between mental health status and medical care use is not straightforward. A substantial number of people in need do not report using health services for mental problems, which is termed unmet need (Alonso et al., 2004; Bijl et al., 2003). In the work of Catalano and Dooley (Catalano et al., 1985; Dooley & Catalano, 1984), the possibility of unmet need is not considered. Nevertheless, economic contraction may increase mental health problems, although this higher need for care may not always directly translate into a higher health care use. Many European countries have responded to recession with austerity policies. This has raised concerns about a possible increase in unmet need (McKee et al., 2012; Stuckler & McKee, 2012). Research has already shown reductions in the use of routine and preventive medical care (Gene-Badia et al., 2012; Kentikelenis et al., 2011). In several countries, recent

health reforms have focused on cost containment (Stuckler & McKee, 2012), often leading to higher prescription fees (Bettio, 2012; Karanikolos, Mladovsky, et al., 2013) and shortages of medicines and supplies (Karanikolos, Mladovsky, et al., 2013; Stuckler & McKee, 2012). The unemployed can be considered as a risk group for unmet need (Alonso et al., 2007; Kyriopoulos et al., 2014), because they generally perceive more (structural) thresholds to the use of (mental) health care, such as financial barriers (Kyriopoulos et al., 2014).

> **Hypothesis 4.2.c:** If the macroeconomic context is poor and/or there is economic contraction, mental health will become worse, which results in a higher unmet need for mental health care, in particular among the unemployed.

Moreover, instead of professional care seeking, it is also possible, and in particular among unemployed men (Bartley, 1994; Vesga-Lopez et al., 2008), that alcohol is used as a substitution of mental health care. Alcohol can function as a kind of coping mechanism to handle stress and anxiety (Riska & Ettorre, 1999).

(2) Direct mechanisms

The second set of explanations assumes a direct relation between economic instability and care seeking, regardless of whether there is a (negative) relation between economic contraction and actual mental health (Catalano et al., 1985; Dooley & Catalano, 1984). The uncovering mechanism, for example, suggests that during recession – characterized by overstaffed Labor-markets and an oversupply of potential employees – atypical behavior or distress will be tolerated less and labeled easier as deviant and sick, which is assumed to lead to increased mental health care use, regardless of whether the behavior is new or has previously been treated (Dooley & Catalano, 1984). In addition, those who have a job may perceive greater job insecurity and will try to prevent illness that might result in job loss. Therefore, economic contraction possibly leads to the anticipation of distress or depression-related complaints, followed by the (asymptomatic) prophylactic or preventive use of mental health facilities (Catalano et al., 1985; Dooley & Catalano, 1984).

> **Hypothesis 4.3:** If the macroeconomic context is poor and/or there is economic contraction, mental health care use will increase, regardless of whether there is an increase in mental health problems.

Hypothesis 4.4.a: Uncovering mechanisms and preventive care use are expected to occur more often among the employed.

Some social researchers have mentioned a "medicalization of unemployment" (Holmqvist, 2009; Miles, 1987). Medicalization is the process whereby non-medical problems are defined and treated as medical problems (Conrad, 1992). Contrary to the dominant biomedical model, which has a need approach (as explained above), the medicalization perspective assumes that medical care use is not always need-driven and highlights the possibility of over-consumption. We have already found evidence for medicalization of unemployment at the individual level: the mental health care use of the unemployed was higher than expected based on their mental health status (Buffel, Dereuddre, et al., 2015). In a report about the health effects of the crisis, the Mental Health Commission (Lynch, 2011) warned against medicalizing financial, economic and social problems. In times of economic recession in particular, we can expect the process of medicalization of unemployment to be stronger, in response to the greater uncertainty of finding a new job. Individual treatment or medical therapy is often an easy solution, although changing the social circumstances of those affected by the crisis would be more effective and constructive.

Hypothesis 4.4.b: Contrary to hypothesis 4.4.a, the unemployed in particular will have a higher mental health care use than assumed based on their mental health status, when the economic context is poor and/or there is economic contraction.

In addition, the shift hypothesis (Catalano et al., 1985) assumes that during economic contraction, the type of care that is consulted for emotional problems will change. It has been suggested that economic contraction forces people out of private care and into less costly care in the public sector (Karanikolos, Mladovsky, et al., 2013; Kentikelenis et al., 2011). Also an increased use in generic mental health medication (e.g. anti-psychotropic medicines) is observed (Leopold et al., 2014). Following this reasoning, the use of more primary care (GPs) and less specialized care (psychiatrists) is expected during a period of recession, given that specialized care is characterized by more thresholds, such as higher fees and a lower supply in most European countries.

Hypothesis 4.4.c: During economic contraction, the likelihood of contacting a GP for mental health problems will increase, while that of psychiatrist consultations decrease, irrespective of the actual mental health status of the individuals.

Finally, we have to remark that this synthesis of perspectives is neither exhaustive nor exclusive, since it is possible that more than one of the mechanisms is at play (Catalano et al., 1985).

Gender differences

There are several grounds to expect gender differences in care use for emotional problems and the relation with employment status and macro-socioeconomic conditions. First, women are more likely to label their problems as health related and to accept rather than resist mental health care (Buffel, Van de Velde, & Bracke, 2014; Catalano et al., 1985).

Second, gender differences in mental health care use have been associated with gender-specific patterns in the pathology of mental disorders: women suffer more from anxiety and depressive disorders, whereas men mainly suffer from impulsive and addictive problems (Vesga-Lopez et al., 2008). The latter disorders are associated with a lower demand for care, which might result in the lower use of mental health care by men (Rhodes et al., 2002).

Third, the manufacturing and construction sectors suffered the immediate effects of the recession, and these sectors are mainly male dominated (Rubery & Rafferty, 2013). As a result, the absolute number of unemployed men increased more than that of women, especially at the start of the economic crisis (Eurofound, 2013). Additionally, individual unemployment may have a stronger negative effect for men. Stigmatization might have a greater impact for unemployed men (Forret, Sullivan, & Mainiero, 2010; Kulik, 2000) and the financial costs of job loss may also be more pronounced for them, in view of the generally larger share of male earnings in household incomes (Wang et al., 2010).

Fourth, although there seems to be a relation between care seeking for emotional problems and economic conditions, it is found to be complex and to vary according to gender (Catalano et al., 1985; Dooley & Catalano, 1984). Men in particular are at an increased risk of suffering from mental health problems during times of economic adversity (Wahlbeck & McDaid, 2012). The question is whether men's care seeking is also more subject to macro-socioeconomic conditions, as Catalano and colleagues (1985) found that psychiatric hospital admissions for women vary more quickly than those for men in response to economic change.

Age effects

Age has been suggested as an important factor in the relation between employment status and mental health, although evidence is mixed (Goldman-Mellor, 2010). Unemployment may be more of a problem for middle-aged and older people than for young adults, due to financial and family responsibilities (Breslin & Mustard, 2003). Conversely, increased unemployment during economic recession has a greater effect on mental health and suicide at younger ages (Uutela, 2010). The majority of young people are eager to enter a vocation, only to discover that few jobs are available, forcing them to accept work for which they are overqualified. Furthermore, a larger proportion of young people have to drop out of school due to their family's inability to financially support them (Economou et al., 2013). In addition, age seems to be directly related to the type of care sought. Research has indicated that younger people find it easier to seek specialized mental health care, whereas older people perceive more socio-cognitive barriers such as stigma, which makes them prefer to use more general care (McAlpine, 2007).

Methods

Sample data

The current study uses data from the Eurobarometer (wave 58.2 in 2002; wave 64.4 in 2005–2006 and wave 73.2 in 2010), which has a repeated cross-sectional survey design. The three waves gathered information from a general population aged 15 and over in member and candidate member countries of the European Union (wave 58.2: 15 countries, wave 64.4: 30 countries and wave 73.2: 28 countries). The basic sample design used in all the countries was a multi-stage, random (probability) sample of individuals within households within an area. Interviews were conducted face-to-face in the national languages. To ensure nationally-representative samples, post-stratification weights are applied according to demographics, using the most recent census data for each country. For more information about the construction of these weights see elsewhere [http://www.gesis.org/eurobarometer-data-service/survey-series/standard-special-eb/weighting-overview/]. Each national sample is representative of the population aged 15 years and above. In line with suggestions from other authors (Frohlich et al., 2001), we do not weight the samples according to population size, as the population sizes of the sampled countries are highly heterogeneous. In addition, we have

to remark that only for wave 58.2 the response rates per country are available[26]; and not for wave 64.4 and 73.2, which is an important limitation of the Eurobarometer data. We merge the data from East and West Germany, and from Northern Ireland and the rest of the United Kingdom. To operationalize change variables optimally (see the analytical procedure section), we only use information from countries that are present in at least two waves.[27] As a result, we retain 27 countries, which are presented and specified by survey year in Appendix 16. The complete dataset of the three waves contains 32 774 men and 37 978 women.

We use a subsample limited to 23 570 male and 28 646 female respondents of working age (20 to 65 years old). Because no variable contains more than 1,7% missing values, the accumulated percentage of missing values for men is 2,6% (n = 592) and for women 2,2% (n = 632)[28]. These cases are omitted from the sample. As a result, the final sample contains information on 22 978 men and 28 014 women. The number of respondents per country and period are also provided in Appendix 16.

Measurements

Mental health care use

Respondents were asked whether they had sought help from a medical professional for a mental health problem in the 12 months preceding the interview. General and specialized care are distinguished, therefore two dummies are constructed: contacting a general practitioner and contacting a psychiatrist (1 = yes; 0 = no).

Mental health

The short 5-item version of the Mental Health Inventory (MHI-5), a subscale of the SF-36 Health Survey version 2 (Ware & Sherbourne, 1992) measuring depression and anxiety-related complaints, is used as an indicator of mental health care need. The scale ranges from 1 to 5 with high scores pointing to less psychological distress and low scores indicating more psychological distress. If one or two items are missing, mean substitution is applied. The internal reliability of the MHI-5 scale is good (Cronbach's alpha for men = 0,803; for women

[26] For the response rates per country of the Eurobarometer wave 58.2, see page 13: [http://ec.europa.eu/health/ph_determinants/life_style/mental_eurobaro.pdf]

[27] Therefore Croatia (2005), Cyprus (TCC) (2005), Turkey (2005) and Iceland (2010) are left out of the analyses.

[28] In the first column of Appendix 14, the percentages of missing values per variable are shown.

= 0,828). There is also existing evidence for the external validity (Mchorney et al., 1993) and comparability across countries (Lehto-Järnstedt, 2003; Wagner et al., 1998).

Employment status contains three categories: unemployed (reference group), employed and non-employed. The non-employed group includes homemakers, students, retired people and those who are unable to work due to illness or disability.

Age is a metric variable and *period* a categorical variable[29] 2002, 2005/2006, and 2010, with 2005/2006 used as the reference category. We argue that it is important to take period into account when examining mental health and help-seeking behavior (George, 2014). By including the period variable in the models, we can control for time trends, such as normal economic cycles, trends in mental health care use (e.g. societal processes of medicalization or demedicalization), changes to health, social, and Labor-market policies, and changes in healthcare systems (e.g. deinstitutionalization of mental health patients, community-oriented mental health care). In addition, by taking 2005/2006 as the reference period, we are able to compare the situation during the economic crisis (the 2010 period), which began in Europe at the end of 2007 (Eurofound, 2013), with the situation in the most recent period before the recession (2005/2006).

To control for possible structural thresholds for care seeking, we include some crude indicators of the availability of mental health services, which can also influence help seeking (Koopmans, Donker, & Rutten, 2005). At the country level, the numbers of GPs and psychiatrists per 10 000 inhabitants are operationalized using information from the OECD 2010 for GPs (OECD), and the Mental Health Atlas 2005 – or 2011 if information for 2005 was not available – for psychiatrists (WHO, 2005, 2011). We also take into account whether or not the country has a gatekeeping system (Xavier, Lipszyc, Sail, & Bartosz, 2010). When there is a gatekeeping system, a patient cannot consult a specialist without first visiting a GP (Xavier, Lipszyc, Sail, & Bartosz, 2010). To consider within-country differences, we control for the *degree of urbanization* using the following categories: large town (reference category), rural area or village, and small or medium-sized town. This can be considered as a proxy for supply (Bracke, Colman, Symoens, & Van Praag, 2010), because the availability of medical professionals may vary from a large city to a more rural area (Saxena et al., 2007). In

[29] These specifications for age and period resulted in the best model fit.

addition, mental health care attitudes may differ by urbanization, with a greater reluctance to seek professional help in rural areas (Hoyt et al., 1997).

We also control for *marital status* (married (reference group), divorced, widowed or single) and *educational level.* The respondents were asked at what age they finished full-time education, and the European Commission (Eurobarometer) has provided a standard categorization of the answers: finished at ages through 15 (reference category), finished at ages 16–19, and finished at ages 20 and older; which correspondents roughly to primary, secondary, and tertiary education. In Appendix 17 a description of the sample with the individual variables by period and gender is given.

As already mentioned, the *unemployment rate* and *real GDP growth rate* are used as indicators of the macroeconomic context, and changes in both are used as proxies for the changing economic context. To calculate these contextual and change variables, we use external data from Eurostat (Labor Force Survey) for the unemployment rates and data from the World Bank[30] for the GDP growth rates (Bank), which are shown in Appendix 18. Data for the year before the interview year is used, because the respondents were asked whether they had sought professional help in the 12 months preceding the interview and because of the expected time lag[31]. For the context variables, we calculate the *mean unemployment rate* and *the mean real GDP growth rate* over the periods per country. The correlation between the two measurements does not exceed r = 0,4 and the results are also controlled for multicollinearity[32]. The way in which the change variables – *change in the unemployment rate* and *change in the real GDP growth rate* – are operationalized will be explained in the following section, as this is related to the statistical procedure we use.

Statistical procedure

We use a micro dataset consisting of a series of repeated cross-sectional sample surveys. Respondents are clustered within periods and countries. The Eurobarometer includes

[30] For the real GDP growth rates we had to rely on the data of the World bank, as Eurostat has no information for 2001 (Eurostat:). The real GDP growth rates for 2004 and 2009 of the World bank are similar to the numbers of Eurostat.

[31] Using external data of the year before the data collection also resulted in the best model fit.

[32] The absence of multicollinearity is not an assumption for logistic regression analysis. However, as we also perform linear regression analysis with mental health as a dependent variable, we have to take a look at the assumption of "absence of multicollinearity". Therefore, we have computed (in SPSS) the Variance Inflation Factor, VIF. For any variable in the model the VIF was a lot lower than 10, which means that there is no problem of multicollinearity

information of around 27 European countries, but has only three repeated waves with information about mental health and care use. Like most repeated cross-sectional surveys, we thus face a problem of obtaining an adequate number of higher-level units at the period level (Van der Bracht & Van de Putte, 2014), since three periods are not enough to include period as an extra level in our multilevel analysis (Stegmueller, 2013). However, given the cross nationalnature of the Eurobarometer, there is a possible solution to this lack of sufficient repeated waves, as has previously been described by Fairbrother (2014): considering the clustering of different waves clustered within countries. National-level time-series cross-sectional data has the advantage that it enables simultaneously modelling cross-sectional (or structural) effects that explain between-country differences, and longitudinal (or change) effects that explain within-country differences over time[33].

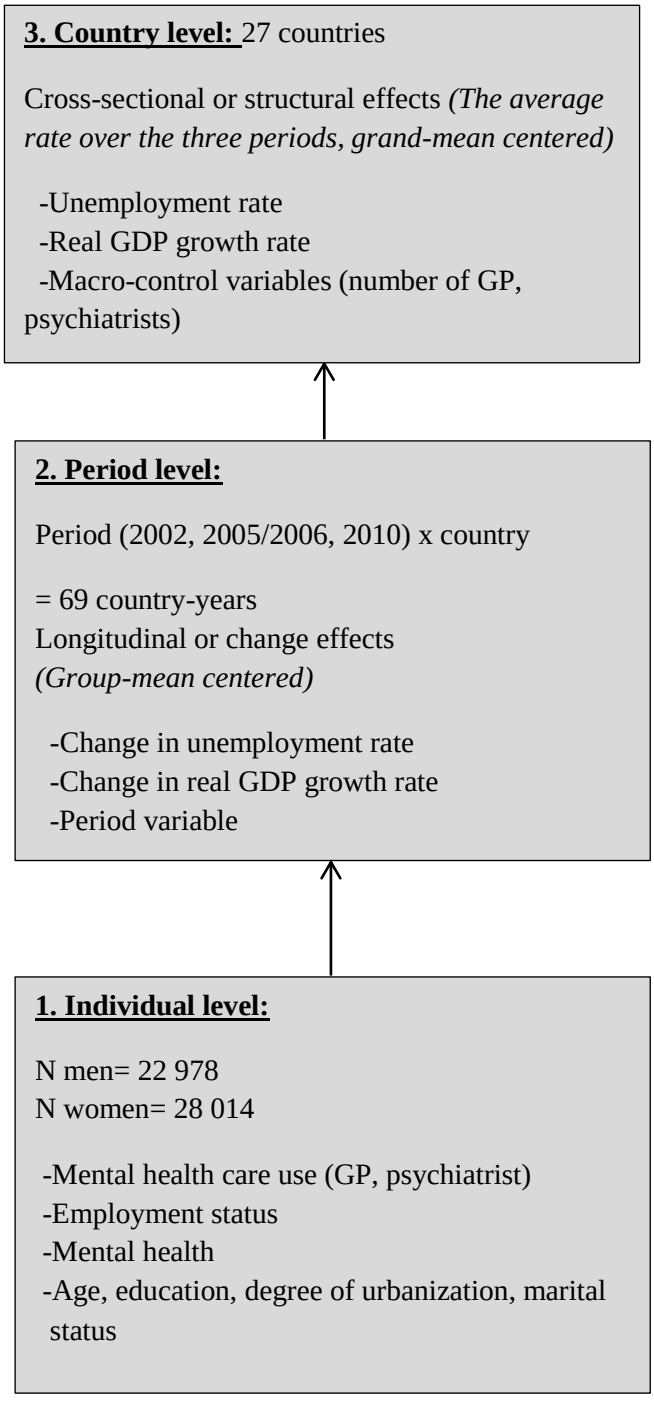
In sum, as you can see in Figure 5, respondents, as units of the individual level (level 1), are nested within country-years ranging from 2002 to 2010 at the period level (level 2), which are in turn nested within countries (level 3). Given that not every country participated in every wave (15 countries in 2002 and 27 in 2005/2006, and 2010), we have a multilevel design of 69 different country-years at the period level, and 27 countries at the country level. Figure 5 also specifies, per level, the different variables that will be included in the models.

To include longitudinal (or change) effects at the period level and cross-sectional (or structural) effects of unemployment rate and real GDP growth rate at the country level in the same model, the longitudinal effects are group-mean centered, as described by Fairbrother (2014). Group-mean centering implies that the variables are measured as deviations from the group-mean, in this case the country mean of the unemployment rate and the real GDP growth rate over the three periods. The cross-sectional effects at country level are grand-mean centered: the context variables are thus centered on the overall mean. In this way, the longitudinal effects of the change indicators are orthogonal to the cross-sectional effects. Table 25 presents the descriptive results for these context and change indicators – real GDP

[33] An important assumption related to this method is that these models presuppose that social change happens within countries over time (Fairbrother, 2014): time trends are nested within each survey each time. Given the limited number of available country-years containing information about professional care seeking for mental health problems, reliably estimating the assumption that country-years are nested within countries by comparing the model fit to that of the alternative model is not warranted (Van der Bracht & Van de Putte, 2014). Therefore we have to assume the nesting of country-years within countries. For this paper, however, notwithstanding that there is a global financial crisis, not every country was affected by or responded to the crisis in the same way (Stuckler, Basu, Suhrcke, Coutts, et al., 2009), which partially supports this assumption.

growth rate and unemployment rate – separately for men and women per country. Table 26 and Table 27 also contain some descriptive results. Table 26 shows the mean scores on mental health and the percentages of GP and psychiatrist consultations for men and women per country and period, while in Table 27, they are given per employment status category.

Figure 5: Presentation of the three-level model, with the number of units and the variables per level



The actual analyses to test our hypotheses consist of two parts: First, our primary assumption at the individual level is tested, specifically whether unemployment is related to worse mental health compared with being employed (Model 1) and how this varies by age (Model 2). Subsequently, we assess the basic proposition of the first strand of theoretical perspectives – which assumes an indirect relation between mental health care use and macroeconomic conditions via actual mental health – and in this regard we compare the employed with the unemployed. Therefore, we briefly look at the relation between employment status and mental health and how this relation is moderated by the macroeconomic context and changes therein (Model 3). In the last model we also take the period variable into account (Model 4). Accordingly, a three-level multiple regression analysis is performed, with mental health status as the dependent variable, controlled for other important determinants of mental health (education, age, and marital status) (Table 28).

In the second part, we use three-level logistic regression analysis with GP (Table 29) and psychiatrist consultations (Table 30) for mental health problems as the dependent variables. In order to shed light on some mediating paths, we present five models: (1) a baseline model with age, employment status, the control variables (degree of urbanization, education and marital status) and the macroeconomic variables at the country level (context variables) and at period level (change variables); (2) a model adjusted for cross-level interaction effects[34] of employment status with the economic context and change variables; (3) a model controlling for the period variable; and (4) subsequently, we assess to what extent the effects of the macroeconomic context and changes therein on mental health care use change when mental health is taken into account; and whether there is also a direct effect of the macroeconomic conditions on mental health care use irrespective of mental health. Finally, (5) in the last model, the interaction effects between age and employment status are introduced.

All models are estimated in the statistical software package MLwiN using Markov Chain Monte Carlo (MCMC) estimation procedures, as this approach has been shown to be robust, particularly when including cross-level interactions. We only consider random intercept models, as the random slopes are not significant. All the analyses are gender differentiated and the metric independent variables (age, mental health, mean unemployment rate, and mean real GDP growth rate) are grand-mean centered to make interaction effects easier to interpret

[34] If the interaction effects are not significant, they are excluded from the analysis to enhance interpretability and to obtain a more parsimonious model.

(Jaccard, 2001). To make the odds ratios (ORs) comparable across the nested models, we use y-standardisation[35] as recommended by Mood (Mood, 2010). By doing this, we partly take unobserved heterogeneity into account.

Results

Descriptive results

First, we briefly discuss some descriptive results. In Table 25, which is a synthesis of the macroeconomic context and change variables, it is notable that the change in the real GDP growth rate is positive for each country in the first two periods, whereas it decreases in 2009 in every country. This is a clear reflection of the economic crisis. This is a clear reflection of the economic crisis. With regard to changes in the unemployment rate, unemployment increases among men in the 2009–2010 period in the majority of countries, particularly in Spain, Ireland, Portugal, Latvia, and Lithuania.

The following table (Table 26) shows, as was also found in our previous study (Buffel, Van de Velde, & Bracke, 2014), that there are large cross national differences in the use of mental health care, while the differences in mental health are smaller. In general, there is no clear increase or decrease in the level of mental health and in mental health care use between the three periods, as the differences between the periods seem to be largely country specific.

The last table (Table 27) with descriptive results shows mental health and mental health care use by employment status and gender, and whether the differences between men and women are significant (using Anova-tests for the metric variables and Chi^2-tests for the categorical). For each period, unemployed men and women have poorer mental health, especially compared with the employed. Employed and non-employed men's mental health is significantly better than that of employed and non-employed women, while this is not the case for unemployed men's mental health.

When the different employment statuses are compared for women, those who were unemployed were most likely to have contacted a GP or a psychiatrist for mental health

[35] This means that the coefficient is divided by the sum of the standard deviation of the predicted logit, and the assumed standard deviation of the error term (which is always the square root of 3,29) (Mood, 2010).

problems in each period (with the exception of psychiatrist consultations in 2002), while for unemployed men this was only the case for 2002. The percentages of women – both employed and unemployed – who contacted a GP and a psychiatrist, are significantly higher than those of men in at least two of the three periods.

Table 25: Descriptives, Context and change indicators, real GDP growth rate and unemployment rate, of women and men per country

	Real GDP growth rate				**Unemployment rate of women**				**Unemployment rate of men**			
	Context	Change variable			Context	Change variable			Context	Change variable		
Country	Mean ($\bar{x}$)	2001-$\bar{x}$	2004-$\bar{x}$	2009-$\bar{x}$	Mean ($\bar{x}$)	200 1-$\bar{x}$	2004-$\bar{x}$	2009-$\bar{x}$	Mean ($\bar{x}$)	2001-$\bar{x}$	2004-$\bar{x}$	2009-$\bar{x}$
Belgium	0,6	0,3	2,8	−3,2	8,4	−0,9	1,1	−0,3	7,1	−1,2	0,4	0,7
Denmark	−0,6	1,4	3,2	−4,5	5,6	−0,1	0,4	−0,3	5,3	−1,2	−0,2	1,3
Germany	−0,9	2,6	2,1	−4,7	8,4	−0,5	1,7	−1,2	8,8	−1,1	1,8	−0,8
Greece	1,4	2,3	3,6	−5,8	15,2	0,9	1,1	−1,9	7,0	0,2	−0,3	0,0
Spain	1,2	2,8	2,0	−4,8	16,0	−0,8	−1,2	2,1	11,2	−3,7	−2,9	6,5
France	0,6	1,4	2,2	−3,5	8,9	−1,1	0,8	0,3	8,4	−0,5	−0,2	0,6
Ireland	1,2	4,1	3,4	−7,6	5,3	−1,5	−1,3	2,9	8,0	−3,9	−3,2	7,0
Italy	−0,7	2,5	2,3	−4,8	10,6	1,5	−0,1	−1,3	6,7	0,2	−0,3	0,1
Luxembourg	0,5	1,5	4,4	−5,8	5,0	−2,6	1,8	0,9	3,2	−1,6	0,4	1,3
Netherlands	0,1	1,5	1,8	−3,4	4,1	−0,9	1,2	−0,3	3,6	−1,5	1,3	0,1
Portugal	0,2	1,7	1,6	−3,2	7,7	−2,6	0,0	2,6	8,0	−2,8	−0,1	3,0
United Kingdom	0,3	2,4	2,2	−4,6	5,0	−0,6	−0,7	1,4	6,4	−0,9	−1,3	2,1
Austria	0,1	1,3	2,6	−3,9	4,7	−0,5	0,7	−0,1	4,2	−1,1	0,3	0,8
Sweden	0,2	1,4	4,1	−5,4	6,9	−1,3	0,2	1,1	7,4	−1,3	0,2	1,2
Finland	−0,6	3,2	4,5	−7,7	8,7	1,0	0,2	−1,1	8,7	−0,1	0,0	0,2
Republic of Cyprus	1,3		3,0	−3,0	5,8		0,3	−0,3	4,4		−0,9	0,9
Czech Republic	0,1		4,9	−4,9	8,8		1,1	−1,1	6,5		0,6	−0,6
Estonia	−4,1		10,6	−10,6	9,7		−0,6	0,6	13,9		−2,8	2,8
Hungary	−0,9		5,7	−5,7	7,9		−1,8	1,8	8,2		−2,1	2,1
Latvia	−4,7		13,4	−13,4	13,1		−1,1	1,1	16,2		−4,7	4,7
Lithuania	−3,7		11,1	−11,1	10,9		0,4	−0,4	13,8		−3,3	3,3
Malta	−1,7		1,2	−1,2	8,3		0,7	−0,7	6,5		0,0	0,0
Poland	3,9		1,3	−1,3	14,4		5,8	−5,8	13,1		5,3	−5,3
Slovakia	0,0		5,3	−5,3	16,1		3,2	−3,2	14,5		3,0	−3,0
Slovenia	−1,7		6,1	−6,1	6,4		0,6	−0,6	5,9		0,0	0,0
Bulgaria	0,8		5,8	−5,8	9,2		2,5	−2,5	9,7		2,8	−2,8
Romania	1,2		8,0	−8,0	6,1		0,7	−0,7	8,1		0,8	−0,8

Source: Real GDP growth rates from the World Bank, unemployment rates from Eurostat (2001, 2004 & 2009), and own calculations.

Table 26: Descriptives, Mental health and mental health care use of women and men, per country and period

	Mental health												**GP consultations**						**Psychiatrist**					
	Women						Men						Women			Men			Women			Men		
	2002		2005/6		2010		2002		2005/6		2010		2002	2005/6	2010	2002	2005/6	2010	2002	2005/6	2010	2002	2005/6	2010
Country	x̄	SD	x̄	SD	x̄	SD	x̄	SD	x̄	SD	x̄	SD	%	%	%	%	%	%	%	%	%	%	%	%
Belgium	3,8	0,8	3,9	0,8	3,8	0,7	3,9	0,8	4,1	0,7	3,8	0,7	8,1	8,2	14,8	4,9	7,0	10,1	1,4	3,2	3,2	2,2	2,9	1,1
Denmark	3,9	0,8	4,1	0,6	3,9	0,6	3,9	0,7	4,1	0,7	4,0	0,5	5,2	12,6	17,0	4,9	11,6	10,6	1,6	1,6	2,4	2,3	0,8	2,0
Germany	3,7	0,8	3,8	0,7	3,8	0,6	3,8	0,7	3,9	0,6	3,8	0,7	7,2	10,8	10,3	4,2	7,6	8,4	0,8	2,0	1,7	0,6	1,2	1,5
Greece	3,6	0,8	3,5	0,8	3,4	0,7	3,9	0,7	3,7	0,7	3,5	0,6	1,7	8,3	5,0	1,9	5,3	2,7	1,2	2,8	0,8	0,3	0,7	0,3
Spain	3,8	0,8	3,8	0,8	3,7	0,7	4,0	0,7	3,9	0,7	3,8	0,6	3,6	4,9	14,7	2,5	3,7	8,2	1,6	1,0	2,9	0,3	1,9	1,7
France	3,6	0,9	3,8	0,8	3,7	0,7	3,8	0,8	4,0	0,7	4,0	0,7	9,2	9,0	13,8	6,7	9,0	10,4	2,8	4,2	1,9	2,1	1,8	2,0
Ireland	3,8	0,7	3,9	0,6	3,9	0,6	4,0	0,7	4,0	0,7	4,0	0,6	6,9	16,0	13,7	3,7	7,3	6,8	0,8	0,7	0,7	1,1	0,3	0,9
Italy	3,4	0,8	3,4	0,7	3,4	0,6	3,6	0,7	3,7	0,7	3,6	0,6	1,0	8,3	10,2	1,8	7,4	11,1	1,5	0,6	0,5	0,8	0,9	0,1
Luxembourg	3,7	0,8	4,0	0,7	3,8	0,7	3,9	0,7	4,1	0,6	4,0	0,6	4,3	15,1	9,5	2,9	16,3	8,0	3,5	3,2	2,0	1,9	2,8	3,7
Netherlands	4,0	0,7	3,9	0,8	3,9	0,7	4,0	0,7	4,2	0,6	4,1	0,6	6,3	10,0	11,9	7,0	5,5	9,1	2,0	2,5	3,4	2,2	3,0	3,0
Portugal	3,5	0,9	3,6	0,8	3,7	0,7	4,0	0,7	3,9	0,7	3,8	0,6	10,0	14,5	18,5	3,2	6,9	3,7	3,7	6,3	2,6	1,2	2,0	2,3
United Kingdom	3,6	0,8	3,9	0,7	3,7	0,8	3,7	0,8	4,0	0,6	3,9	0,7	11,1	12,6	17,8	9,4	9,3	9,1	1,2	1,2	1,5	2,4	1,2	1,3
Austria	3,8	0,8	3,8	0,7	3,7	0,7	3,9	0,7	4,2	0,7	3,7	0,7	5,5	13,3	12,7	2,9	9,1	10,7	0,8	2,3	0,9	0,3	0,5	0,5
Sweden	3,9	0,7	4,0	0,7	4,0	0,6	4,1	0,7	4,2	0,6	4,1	0,6	7,6	10,2	11,4	2,3	5,2	6,9	2,7	2,8	1,5	1,7	1,0	2,2
Finland	4,2	0,6	4,1	0,6	4,0	0,6	4,1	0,6	3,9	0,7	4,0	0,6	3,8	5,4	7,4	2,2	4,6	6,6	2,1	2,5	3,0	1,9	3,0	2,2
Republic of Cyprus			3,5	0,8	3,5	0,8			3,9	0,7	3,8	0,7		4,9	6,0		1,2	4,9		1,3	1,5		0,6	2,7
Czech Republic			3,8	0,7	3,8	0,7			3,9	0,7	3,7	0,7		9,3	9,2		7,2	8,2		2,5	1,2		2,4	1,3
Estonia			3,7	0,8	3,6	0,8			3,9	0,8	3,8	0,7		14,4	14,8		10,2	9,5		3,7	3,3		2,7	1,9
Hungary			3,7	0,9	3,6	0,8			3,8	0,8	3,7	0,7		10,1	9,7		6,2	6,3		4,0	3,7		4,0	1,4
Latvia			3,6	0,8	3,5	0,7			3,9	0,8	3,8	0,7		7,5	13,6		5,0	7,4		1,3	0,6		0,7	0,6
Lithuania			3,5	0,8	3,5	0,7			3,6	0,8	3,5	0,7		12,6	14,6		8,8	10,1		3,2	2,6		1,9	2,8
Malta			3,7	0,7	3,6	0,7			3,8	0,7	3,6	0,7		7,2	11,5		6,3	10,2		2,4	1,4		1,8	2,3
Poland			3,7	0,9	3,7	0,8			3,9	0,6	3,8	0,6		7,8	8,2		6,6	4,3		3,3	2,1		2,3	1,0
Slovakia			3,8	0,7	3,7	0,7			3,8	0,8	3,7	0,7		13,1	17,0		10,4	14,6		1,3	1,2		1,6	0,7
Slovenia			3,7	0,7	3,8	0,6			3,9	0,7	3,9	0,6		9,0	5,8		5,0	4,5		1,7	2,4		1,8	2,6
Bulgaria			3,6	0,8	3,6	0,7			3,9	0,6	3,8	0,6		12,6	5,6		9,1	1,7		1,9	0,5		0,5	0,1
Romania			3,6	0,8	3,5	0,7			3,8	0,7	3,6	0,7		24,7	25,4		15,9	24,5		0,5	0,8		0,9	0,5

Source: Eurobarometer 58.2 (2002), 64.4 (2005/2006) and 73.2 (2010).

Table 27: Descriptive, Gender differences in mental health and mental health care use by employment status and period

		Mental health (1–5)					**GP consultations**			**Psychiatrist consultations**		
		Women		Men			Women	Men		Women	Men	
		$\bar{x}$	SD	$\bar{x}$	SD	sig.[a]	%	%	sig.[b]	%	%	sig.[b]
2002	Employed	3,8	0,8	3,9	0,7	***	5,5	3,5	***	1,4	1,1	
	Unemployed	3,6	0,9	3,6	0,8		10,5	7,3		2,1	2,9	
	Non-employed	3,7	0,8	3,9	0,8	***	7,0	5,3	*	2,2	2,0	
2005/2006	Employed	3,9	0,7	4,0	0,6	***	8,9	6,1	***	1,5	1,1	*
	Unemployed	3,6	0,8	3,7	0,8		13,5	9,0	**	3,5	1,6	*
	Non-employed	3,6	0,8	3,8	0,8	***	13,2	12,5		3,2	3,6	
2010	Employed	3,8	0,7	3,9	0,6	***	10,8	7,6	***	1,1	0,8	*
	Unemployed	3,5	0,8	3,5	0,8		15,1	10,2	***	3,4	3,0	*
	Non-employed	3,6	0,7	3,8	0,7	***	14,1	12,9		2,5	2,9	

* p < 0,050 ** p < 0,010 *** p < 0,001; N individual women = 28 014 & men=22 978.
[(a)] Difference between men's and women's mean tested via Anova-test.
[(b)] Difference between men's and women's proportion tested via pairwise Chi^2-test.
Source: Eurobarometer 58.2 (2002), 64.4 (2005/2006) and 73.2 (2010).

Results of the three-level regression analyses

From the variance decomposition of the null model (not shown) we notice that there is relatively little variance in mental health at the higher levels (between-years within countries at level 2 and between-countries at level 3): 5,5% of women's and 5,9% of men's mental health are influenced by the country and the period in which they are surveyed (ρ country + period=(σ^2country + σ^2period)/ (σ^2country + σ^2period + σ^2individual). The variance in care use at the higher levels (Variance Partition Coefficient country + period = (σ^2country + σ^2period)/ (σ^2country + σ^2period + 3.29) is markedly higher, particularly in GP consultations (women: 12,2%; men: 11,6%; psychiatrist consultations respectively 6,3% and 7,1%). This could be a first indication that mental health care use is not just need based.

The relations between employment status and mental health by age, macroeconomic context, and changes therein

We start with the basic relation between individual employment status and mental health (Table 28). As expected, for both women and men the association between being employed and mental health is positive (Model 1: b_{women} = 0,157; b_{men} = 0,272). This relation changes

with age: the mental health gap between the employed and the unemployed is slightly larger among the older respondents (Model 2: $b_{women} = 0{,}007$; $b_{men} = 0{,}004$).

Next, we are interested in the initial assumption of the first set of theoretical perspectives, which assumes an indirect relation between macroeconomic conditions and mental health care use, via actual mental health. Therefore, we first test whether there is a relation between mental health and the macroeconomic context and changes therein (Model 3). In countries with an increase in real GDP growth rate, men's mental health is slightly better ($b = 0{,}009$). However, after controlling for the period variable, this effect is no longer significant (Model 4). We also find that in countries with a high mean unemployment rate, men's mental health is slightly worse ($b = 0{,}016$), irrespective of their individual employment status and the period of study. The first part of hypothesis 1 is thus confirmed for men. Among women, the relation between the mean unemployment rate and mental health is only found for the employed ($b = -0{,}007$; Model 3). This relation also remains significant after controlling for period (Model 4). In addition, in Model 4 we observe that the mean mental health of men and women of working age in 2002 ($b_{women} = -0{,}085$; $b_{men} = -0{,}081$) and 2010 ($b_{women} = -0{,}068$; $b_{men} = -0{,}105$) is significantly worse than in 2005/2006.

Table 28: Mental health regressed on employment status, age, and economic context and change variables

	Men								**Women**							
	Model 1		Model 2[a]		Model 3		Model 4		Model 1		Model 2[a]		Model 3[a]		Model 4[a]	
	b	sig.	b	sig.	b	sig.	b	sig.	b	sig.	b	sig.	b	sig.	b	sig.
Intercept	3,629	***	3,620	***	3,632	***	3,693	***	3,371	***	3,364	***	3,391	***	3,601	***
(1) Individual variables																
Age[b]	−0,002	*	−0,007	***	−0,002	*	−0,002	*	−0,004	***	−0,010	***	−0,004	***	−0,004	***
Employment status (ref. unemployed)																
Employed	0,272	***	0,281	***	0,268	***	0,269	***	0,157	***	0,184	***	0,159	***	0,159	***
Non-employed	0,177	***	0,175	***	0,174	***	0,175	***	0,093	***	0,117	***	0,095	***	0,095	***
Employed x age[b]			0,004	***							0,007	***				
(2) Period variables																
Change in real GDP growth rate[c]					0,009	*	0,001						−0,006		0,003	
Change in unemployment[c]					0,007		0,002						0,003		0,004	
Period (ref. 2005/2006)																
2002							−0,081	**							−0,085	***
2010							−0,105	*							−0,068	*
(3) Context variables																
Mean real GDP growth rate[b]					0,009		0,013						−0,017		0,014	
Mean unemployment rate[b]					−0,016	*	−0,016	*					−0,006		−0,014	
Employed x mean unemployment rate[b]					-		-						−0,007	*	−0,006	*
Variance																
(3) Country	0,018	*	0,019	**	0,017	**	0,018	**	0,005	*	0,004		0,006		0,015	
(2) Period	0,010	**	0,009	**	0,006	**	0,005	*	0,146	***	0,147	***	0,143	***	0,009	
(1) Individual	0,458	***	0,457	***	0,458	***	0,458	***	0,542	***	0,542	***	0,542	***	0,542	
ρ[d]	0,058		0,058		0,048		0,048		0,218		0,218		0,216		0,042	
DiC	47 299,777		47 284,117		47 297,345		47296,805		63 057,254		63 037,902		63 060,348		63 056,399	

* p < 0,050 ** p < 0,010 *** p < 0,001; $N_{individual\ women}$ = 28 014 & $_{men}$ = 22 978; $N_{period\ (x\ country)}$ = 69; $N_{country}$ = 27. Models controlled for education and marital status.
[a] Controlled for interaction effects with the non-employed (model 2 men & women: non-employed x age; model 3–4 women: non-employed x mean unemployment rate).
[b] Variable is grand-mean centered (abstraction of mean of all respondents).
[c] Variable is group-mean centered (abstraction of mean of the group).
[d] Variance at both higher levels: 3 and 2 (country + period) = $(\sigma^2_{country} + \sigma^2_{period})/ (\sigma^2_{country} + \sigma^2_{period} + \sigma^2_{individual})$.
Source: Eurobarometer 58.2 (2002), 64.4 (2005/2006), and 73.2 (2010).

The relation between employment status and mental health care use by age, macroeconomic context, and changes therein

We now examine how individual employment status and the macroeconomic context and changes therein are related to mental health care use, for which we turn to Table 29 (GPs) and Table 30 (psychiatrists). To find out whether there is an indirect (Hypothesis 4.1) or direct (Hypothesis 4.2) relation between the macroeconomic conditions and professional care use, we start with the baseline models in which the context and change variables, the individual employment status and the control variables (age, education, marital status and degree of urbanization) are included. Men's likelihood of contacting a GP for mental health problems is higher in countries with an increase in the unemployment rate (OR = 1,031). Women in countries with a decrease in the GDP growth rate are also more likely to contact a GP (OR = 1/0,986). With regard to psychiatrist consultations, we do not find macroeconomic effects in the baseline model. At the individual level, the unemployed men and women are significantly more likely to contact a GP (OR_{men} = 1/0,827; OR_{women} =1/0,786) and a psychiatrist (OR = 1/0,642; OR = 1/0,638) compared to the employed.

Furthermore, interaction effects with employment status are added to test whether the relation with mental health care use varies across the macroeconomic context and changes therein, and thus whether the direct or the indirect mechanisms are more pronounced among the unemployed (Hypothesis 4.2.a or 4.a) or the employed (Hypothesis 4.2.b or 4.b). Model 2 of Table 29 shows a positive association between mean unemployment rate and GP consultations for men, but only among the employed: the likelihood of employed men to contact a GP for mental health problems is higher in countries with a higher unemployment rate (OR = 1,031). With regard to men's psychiatrist consultations (Model 2, Table 30), we see that in countries with a decline in the GDP growth rate, employed men are less likely to contact a psychiatrist (OR = 1/1,035) compared to those in countries with an increase in the GDP growth rate. The relation between an increase in unemployment rate and a higher likelihood of contacting a GP among men, as well as, the relation between a decrease in the real GDP growth rate and the higher likelihood of contacting a GP among women (Models 2 in Table 29) do not vary significantly across employment status.

Table 29: General practitioner consultations regressed on employment status, age, mental health, and economic context and change variables.

	Men										**Women**									
	Model 1		Model 2[a]		Model 3[a]		Model 4[a]		Model 5[a]		Model 1		Model 2[a]		Model 3		Model 4		Model 5[a]	
	OR	sig.	OR	sig.	OR	sig.	OR	sig.	OR	sig.	OR	sig.	OR	sig.	OR	sig.	OR	sig.	OR	sig.
Intercept	0,304	***	0,313	***	0,349	***	0,251	***	0,256	***	0,380	***	0,389	***	0,390	***	0,374	***	0,369	***
(1) Individual variables																				
Age[b]	1,009	***	1,009	***	1,009	***	1,008	***	1,001		1,007	***	1,007	***	1,007	***	1,005	***	1,010	***
Employment status (ref. unemployed)																				
Employed	0,827	***	0,806	***	0,802	***	0,975		0,976		0,786	***	0,784	***	0,790	***	0,873	***	0,865	***
Non-employed	1,050		1,026		1,016		1,143	*	1,142	*	0,888	**	0,889	***	0,893	**	0,938		0,933	
Mental health[b]							0,582	***	0,582	***							0,611	***	0,611	***
Employed x age[b]									1,008	*									0,995	
(2) Period variables																				
Change in real GDP growth rate[c]	0,994		0,994		0,997		1,004		1,006		0,986	*	0,985	**	1,002		1,001		1,005	
Change in unemployment[c]	1,031	*	1,031	*	1,024	*	1,021	*	1,021	*	1,031		1,027		1,010		1,010		1,014	
Period (ref. 2005/2006)																				
2002					0,708	*	0,668	***	0,671	***					0,728	***	0,466	***	0,474	***
2010					1,022		1,058		1,078						1,118	*	1,082		1,122	
(3) Context variables																				
Mean real GDP growth rate[b]	0,978		0,981		0,983		0,991		0,990		0,990		0,977		0,987		0,993		0,992	
Mean unemployment rate[b]	1,007		0,979		0,970		0,973		0,964		0,983		0,987		0,982		0,980		0,980	
Employed x mean unemployment rate			1,031	*	1,032	*	1,029	*	1,028	*			1,023		-		-		-	
Variance																				
(3) Country	0,072		0,087		0,154		0,175		0,197		0,066		0,063		0,121		0,176		0,167	
(2) Period	0,224		0,212		0,085		0,089		0,082		0,196		0,203		0,075		0,079		0,081	
VPC[d]	0,141		0,142		0,117		0,127		0,134		0,126		0,128		0,098		0,123		0,121	
DiC	11 424,972		11 424,728		11 420,274		10 605,999		10 605,990		18 183,328		18 176,035		18 179,319		16 974,150		16 973,980	

* p < 0,050 ** p < 0,010 *** p < 0,001; N individual women = 28 014 & men = 22 978; N period (x country) = 69; N country = 27.
Odds ratio's (OR) are y-standardized; Models controlled for education, marital status and degree of urbanization.
[a] Controlled for the interaction effects with the non-employed (model 2–5 men; model 2 women: non-employed x mean unemployment rate; model 5 men & women: non-employed x age).
[b] Variable is grand-mean centered (abstraction of mean of all respondents).
[c] Variable is group-mean centered (abstraction of mean of the group).
[d] Variance at both higher levels: 3 and 2 (country + period) = $(\sigma^2_{country} + \sigma^2_{period})/ (\sigma^2_{country} + \sigma^2_{period} + 3{,}29)$.
Source: Eurobarometer 58.2 (2002), 64.4 (2005/2006), and 73.2 (2010).

Table 30: Psychiatrist consultations regressed on employment status, age, mental health, and economic context and change variables.

	Men										Women									
	Model 1		Model 2[a]		Model 3[a]		Model 4[a]		Model 5[a]		Model 1		Model 2[a]		Model 3		Model 4		Model 5[a]	
	OR	sig.	OR	sig.	OR	sig.	OR	sig.	OR	sig.	OR	sig.	OR	sig.	OR	sig.	OR	sig.	OR	sig.
Intercept	0,132	***	0,126	***	0,139	***	0,094	***	0,088	***	0,173	***	0,168	***	0,183	***	0,148	***	0,155	***
(1) Individual variables																				
Age[b]	1,008	**	1,008	**	1,008	**	1,006	*	0,992		1,003		1,003		1,003		1,001		0,997	
Employment status (ref. unemployed)																				
Employed	0,642	***	0,653	***	0,652	***	0,807	*	0,855		0,638	***	0,647	***	0,637	***	0,751	***	0,759	***
Non-employed	1,021		1,048		1,042		1,166		1,220	*	0,934		0,947		0,933		1,017		1,024	
Mental health[b]							0,491	***	0,489	***							0,516	***	0,516	***
Employed x age[b]									1,016	*									1,005	
(2) Period variables																				
Change in real GDP growth rate[c]	1,010		0,988		0,987		0,983		0,987		1,006		0,996		0,997		0,998		0,999	
Change in unemployment[c]	1,030		1,029		1,023		1,022		1,026		1,024		1,025		1,011		1,011		1,012	
Employed x change GDP growth rate			1,035	*	1,034	*	1,041	*	1,043	*			1,013		-		-		-	
Period (ref. 2005)																				
2002					0,916		0,839		0,865						0,850	*	0,490	***	0,494	***
2010					0,966		0,930		0,973						0,879	*	0,876		0,892	
(3) Context variables																				
Mean real GDP growth rate[b]	0,955		0,972		0,968		0,971		0,966		0,984		0,985		0,987		0,996		0,991	
Mean unemployment rate[b]	0,973		0,976		0,972		0,957		0,955		0,995		0,994		0,995		0,989		0,985	
Variance																				
(3) Country	0,211		0,219		0,215		0,435		0,430		0,230		0,219		0,223		0,326		0,319	
(2) Period	0,027		0,019		0,017		0,024		0,025		0,016		0,029		0,028		0,015		0,016	
VPC[d]	0,116		0,116		0,114		0,202		0,201		0,120		0,121		0,122		0,159		0,156	
DiC	3 455,473		3 452,717		3 454,947		3 052,591		3 052,627		5 383,282		5 385,256		5 381,756		4 816,708		4 819,491	

* p < 0,050 ** p < 0,010 *** p < 0,001; N individual women = 28 014 & men = 22 978; N period (x country) = 69; N country = 27.
The odds ratio's (OR) are y-standardized; Models controlled for education, marital status and degree of urbanization.
[a] Controlled for the interaction effects with the non-employed (model 2–5 men & model 2 women: non-employed x change GDP growth rate; model 5 men & women: non-employed x age).
[b] Variable is grand-mean centered (abstraction of mean of all respondents).
[c] Variable is group-mean centered (abstraction of mean of the group).
[d] Variance at both higher levels: 3 and 2 (country + period) = $(\sigma^2_{country} + \sigma^2_{period})/ (\sigma^2_{country} + \sigma^2_{period} + 3{,}29)$.
Source: Eurobarometer 58.2 (2002), 64.4 (2005/2006), and 73.2 (2010).

In the third model, the period variable is taken into account. As a result, women's relation between change in real GDP growth rate and GP consultations is no longer significant (Model 3, Table 29).

To see whether the relations between the macroeconomic conditions and mental health care use are mediated by mental health (indirect mechanism), or only partly and that they also remain significant regardless of mental health (direct mechanism), mental health status is introduced in Model 4. Among men, the relation between change in unemployment rate and GP consultations only slightly attenuates and remains significant. The interaction effect between change in real GDP growth rate and employment status on men's psychiatrist consultations even appears to be slightly stronger after taking mental health into account (OR = 1,034 Model 3; OR = 1,041 Model 4). Men's mental health care use, thus is to some extent directly associated with the macroeconomic change and contextual variables, as we find some significant effects after taking mental health status into account; while for women, the main effects of the mean unemployment rate and real GDP growth rate, and changes in both, are not significantly related to mental health care use, after controlling for the period variable and mental health.

By adding the mental health status (Model 4), we can also assess whether the higher mental health care use by the unemployed can be ascribed to their worse mental health status at the individual level (as found in Table 28), which would be in line with the need hypothesis. If the mental health care use of the unemployed remains significantly higher after controlling for actual mental health, this would be an indication of the medicalization theory. The results are primarily in line with the latter, with the exception of GP consultations for unemployed men (Model 4, Table 29).

In addition, there are some interesting period and age effects. In 2002 and 2010, women (OR respectively 0,850 and 0,879; Model 3 Table 30) were less likely to consult a psychiatrist than in 2005/2006. Otherwise, with regard to GP consultations for emotional problems, we observe that in 2010, women were significantly more likely to contact a GP than in 2005/2006 (OR = 1,118; Model 3 Table 29). This can mainly be ascribed to a higher need for care in 2010, as the period effect here is no longer significant after taking mental health into account (Model 4). By contrast, the likelihood of contacting a GP for mental health problems was lower for

women (OR = 0,728) and men (OR = 0,708) in 2002 than in 2005/2006, also after controlling for mental health (Model 4).

Only for men, some interaction effects of age with employment status are found. If men's age is higher than the mean (around 43 years old, see Table 30), employed men ($OR_{age*employed}$ = 1,008) are more likely to visit a GP for mental health problems compared with the unemployed of the same age, irrespective of their mental health. However, when their age is lower than the mean age, employed men are less likely to visit a GP than the unemployed are at the same age. With regard to men's psychiatrist consultations, the results show that: the older men are, the smaller the difference in psychiatrist consultations between the employed and the unemployed ($OR_{age*employed}$ = 1,016).

Discussion

In this study, we have assessed whether the relation between employment status and mental health care use is contingent on the economic climate; and whether the macroeconomic context and changes therein are related to mental health care use, via their impact on mental health, or more directly, irrespective of mental health. Our study reveals some important findings.

First, we have briefly examined the relation between macroeconomic conditions and mental health. Some results seem to support the basic assumption of the first set of perspectives, which we named indirect mechanisms. Among both unemployed and employed men, mental health is worse in countries with a high mean unemployment rate than in countries with a lower one. Possible explanations are that the unemployed are more pessimistic regarding future prospects, as their chances of re-employment are lower, and that the employed perceive greater job insecurity, a higher work load in shrinking sectors (Lynch, 2011), and work intensification (more work pressure and a higher work speed) (Green, 2014; Utzet, 2014), which are risk factors for worse mental health.

For women, the negative relation between a high unemployment rate and mental health is only applicable to the employed. Thus, in countries with a high unemployment rate, the

mental health gap between unemployed and employed women is smaller, as the negative impact is stronger for the employed. A possible explanation can be found in the social norm theory (Clark et al., 2010; Clark, 2003). The social norm effect of unemployment assumes that the employed suffer the most from a high unemployment rate, through increasing job insecurity, feelings of guilt, and higher workloads, whereas for those who are unemployed, any social norm effect mitigates the negative effects of unemployment (Clark et al., 2010). In this context, unemployment may be perceived more as a structural problem than a personal failure, which can reduce the associated stigma.

The results have also shown that in countries with a decrease in the GDP growth rate, men's mental health is slightly worse compared to that of men in countries with an increase in their GDP growth rate (but only when period is not taking into account). This may be an indication of a negative effect of the economic recession on men's mental health, irrespective of their own employment status. This confirms the results of some single-country studies, performed in countries that were highly affected by the crisis, such as Spain and Greece (Economou et al., 2013; Gili et al., 2012; Madianos et al., 2011). Among women, hardly any evidence is found for increased mental health problems in a situation of economic contraction, characterized by a strong increase in the unemployment rate and/or decrease in the real GDP growth rate. This is in line with the results presented by Eurofound, based on the EQLS data (Eurofound, 2012), which report that mental well-being remained fairly stable in Europe during the economic crisis, with the exception of only a few countries. A possible explanation for the rather small effect of economic contraction on men's mental health and no effect on women's mental health could be that there are also (mental) health gains associated with economic contraction, which might counter the expected negative impact of the recession (De Vogli, 2013; Ruhm, 2000). However, these positive health effects of the recession were especially related to health behavior (e.g. more physical activity, less alcohol consumption) (Ruhm, 2000). An alternative explanation could be that 2010 is a little too late to capture the acute short-term effect or the "shock panic reaction" just after the start of the crisis, whereas on the other hand, it might be too early for evaluating long-term effects on mental health.

Subsequently, the relation with mental health care use was explored. Among men, we found that the relations between macroeconomic conditions and GP consultations for mental health

problems could only partly be ascribed to the actual mental health status, and the relation with psychiatrist consultations even became slightly stronger. These findings are in line with the second set of perspectives, which assumes that there is a direct relation between macroeconomic conditions and mental health care seeking (Hypothesis 4.3).

On the one hand, we find that in countries with a high increase in unemployment, general mental health care is used more often by both the employed and the unemployed men, irrespective of actual mental health status. This suggests that the medicalization process is stronger in the countries that were hit hardest by the crisis in terms of unemployment rates. Despite the fact that in times of economic contraction unemployment should be seen as a structural problem, it is also a more desperate situation that possibly is still treated first and foremost as a personal problem. Even among those who have a job, a slight increase in GP consultations is found, which might be explained by increased job insecurity (Eurofound, 2013). Our previous research (Buffel, Dereuddre, et al., 2015) has indeed shown that job insecurity can be medicalized. In addition, in countries with a high mean unemployment rate, employed men are more inclined to contact a GP for mental health problems. As this relation applies only to employees, it seems to be in line with the uncovering hypothesis and/or the (asymptomatic) prophylactic use of mental health facilities (Catalano et al., 1985; Dooley & Catalano, 1984) (Hypothesis 4.4.b). Moreover, the medicalization of increased job insecurity could also be a possible explanation here.

On the other hand, with regard to men's psychiatrist consultations we find that in countries with a decline in the GDP growth rate, the employed are less likely to contact a psychiatrist, regardless of their mental health. This result, in combination with the increase in GP consultations appears to be an indication of the shift hypothesis. An alternative or additional explanation, which could explain why this finding only applies to working people, may be that the employed may avoid specialized care use for fear of being labeled as sick, acquiring a treatment stigma (de Belvis et al., 2012), and consequently losing their job (Gene-Badia et al., 2012).

Among women, we found that in countries with a decline in GDP growth rate, there is an increase in GP-consultations. However, this relation could be ascribed to period effects and

the actual mental health status. This finding in combination with the period effects, suggests an indirect relation between macro-socioeconomic conditions and general mental health care (GP consultations) among women (Hypothesis 4.1). Women were more likely to contact a GP for mental health problems in 2010 than in 2005/2006, which could be ascribed to their worse mental health in 2010. The provocation explanation should link the period of general economic contraction (2010) to more depressive and anxiety symptoms that are, in turn, linked to more general help seeking (Dooley & Catalano, 1984). This would also be consistent with the need hypothesis (McAlpine, 2007). This conclusion does not seem to extend to specialized mental health care, as the likeliness of contacting a psychiatrist was lower in 2010. This could indicate an increase in unmet need for specialized care, or a shift to more accessible general health care in times of economic contraction.

In addition, we want to pay attention to some interesting results at the individual level. Consistent with previous research (Bartley, 1994; Paul & Moser, 2009), the unemployed do have a worse mental health than the employed, and consequently a higher need for professional care. As expected, the negative relation between unemployment and mental health is stronger for the middle and older age groups. The observed higher mental health care use by the unemployed, however, cannot be ascribed solely to their poorer mental health, with the exception of unemployed men's GP consultations, which are mainly need based. Unemployed men and women use more specialized medical care (psychiatrists), and unemployed women also use more general medical care (GP) for mental health problems than would be expected based on their need for care. These findings are in line with some previous studies (Bijl & Ravelli, 2000; Buffel, van de Straat, et al., 2015; Yuen & Balarajan, 1989), and support the "medicalization of unemployment" hypothesis: using medical care not merely in response to mental health problems, but as a way to cope with unemployment (Buffel, Dereuddre, et al., 2015). Stress and other negative emotional feelings resulting from unemployment could lead to isolated non-specific symptoms, which are reclassified as diseases for which medical treatment is sought (Holmqvist, 2009). Based on our results, we cannot simply say that this medicalization of unemployment is more pronounced among the younger or the older respondents. We find that at an older age the differences in the use of psychiatrist consultations decrease between the employed and the unemployed, regardless of their mental health, but only for men. Further research using data covering a wider time span

could be useful here, in order to explore whether this age effect is instead a hidden cohort effect.

Finally, some limitations of the study should be addressed. First, the Eurobarometer data has some problems with regard to temporal order. The main independent variable – employment status – indicates the situation of the respondents at the time of the interview. However, the items concerning professional care seeking refer to the twelve months preceding the interview, and the period of reference for experiencing depressive feelings is the preceding four weeks. As a result, we cannot differentiate between processes of causation and those of reverse causation. This is normal for most cross-sectional studies (Bracke et al., 2010; Gouwy, 2008), but it contributes to blurring the time ordering of the main variables. Accordingly, we attempted to control for possible selection biases and problems of endogeneity in various way. Reverse causality is a concern if individuals with poorer health are more likely to be unemployed. As we separate those who were inactive due to illness or disability from the category of the unemployed, we reduce this possible reverse causality. The models are also estimated taking the country's unemployment rate into account. By doing this, we control for potential between-country differences in selection bias related to between-country variation in the proportion of the unemployed. However, with the available data, we cannot give a definite answer regarding the direction of the relations.

Second, we are unable to consider income due to limitations of the dataset used. Financial means are an important enabling resource with regard to professional care use (van Doorslaer & Jones, 2004; Vasiliadis, Tempier, Lesage, & Kates, 2009). After controlling for mental health, low-income groups are found to use fewer mental health services, in particular specialized care. Nevertheless, the indicators for education and employment situation may at least partially replace income effects (Bracke et al., 2010).

Third, the information about mental health is self-reported and only takes depression and anxiety-related complaints into account. This is a relatively limited operationalization of mental health status and need–a description strictly in terms of "mental illness" and not in terms of "inability to function". In addition, the expression of stress and mental health problems differs between men and women, and accordingly it would be better to also include

indicators of impulsive and addictive behavior, such as alcohol abuse (Vesga-Lopez et al., 2008). Similar to mood and anxiety disorders, this type of behavior can also be related to unemployment (M. Bartley, 1994) and is found to be negatively associated with health care use (Buffel; Colman, 2014; Rhodes et al., 2002).

Conclusions

In sum, although the evidence for the medicalization theory is quite convincing at the individual level – the unemployed have a higher medical care use than expected based on their need for mental health care (Buffel, Dereuddre, et al., 2015) – this is less the case when the macroeconomic context and changes therein are also considered. A shortcoming of the medicalization perspective, which is revealed throughout this study, is that it does not take the type of care system (primary versus specialized medical care) into account. As we find different trends in primary and specialized care use for mental health problems when paying attention to the impact of macroeconomic conditions this seems to be very important. The results suggest an increase in GP consultations for mental health problems during poor economic conditions, whereas we find a decrease in psychiatrist consultations during economic contraction, irrespective of mental health status.

Moreover, although macroeconomic conditions seem to be directly associated with mental health and professional care seeking of men, they possibly also have indirect consequences for well-being and mental health care use through their effect on public policies (Cooper, 2011). Therefore, in a future study we aim to examine the role of a country's austerity policies in response to the crisis, given that active labor-market programs, strong social safety nets, and mental health prevention campaigns seem to mitigate the negative mental health effects of recession (Stuckler, Basu, Suhrcke, Coutts, et al., 2009; Vuori et al., 2002).

Finally, as the current study helps to understand how the mental health care use of the unemployed versus the employed is related to the economic context and changes therein, further research needs to explore the role of specific characteristics of a country's health care system and social policies. In addition, although we focus here on the unemployed versus the employed, we recognize that within these two groups there are also important differences. For the unemployed these include, for example the duration and the reason of job loss (Virtanen,

1993), and for the employed, intrinsic and extrinsic job characteristics (De Moortel, Vandenheede, Muntaner, et al., 2014; Virtanen et al., 2008). These differences might also be related to mental health and mental health care use. Moreover, dependent on social class and socio-economic position, some individuals more will be more vulnerable to individual unemployment and to the impact of the macroeconomic context and changes therein than others, which may also have consequences for their mental health and medical care use. Accordingly, further research that goes beyond the dichotomy of employed versus unemployed is certainly required.

CHAPTER 11

Study 5. The Institutional Foundations of Medicalization: A Comparative Approach to Medicalizing Unemployment

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Buffel V, Beckfield J, & Bracke P (Revise and Resubmitted) The Institutional Foundations of Medicalization: A Comparative Approach to Medicalizing Unemployment. Journal of Health & Social Behavior.

In this study, we investigate whether the relation between unemployment and mental health care use, controlling for mental health status, varies across European countries, with their differing unemployment and health care policies. We hypothesize that medicalization of unemployment is stronger in countries where a low level of unemployment generosity is combined with a high level of health care generosity. A subsample of 36 306 working-age respondents from rounds 64.4 (2005–2006) and 73.2 (2010) of the cross national survey, Eurobarometer, is used. Country-specific logistic regression and multilevel analyses are performed. We find that in the majority of the 24 nations for which we have complete data, unemployment is medicalized at least to some degree. Moreover, the medicalization of unemployment varies substantially across countries, corresponding to the combination of the level of unemployment and of health care generosity.

Introduction

The negative relation between unemployment and mental health is well established (Paul & Moser, 2009), but much less is known about how unemployment translates into the utilization of mental health care (MHC). Few studies have explored the relation between employment status and health care use, and these use the consumption of health services or medication as a proxy for mental health problems (Schmitz, 2011; Virtanen et al., 2008). This is a significant limitation; given that MHC and antidepressant use among the unemployed is not exclusively need based (Bijl & Ravelli, 2000; Buffel, Dereuddre, & Bracke 2015; Buffel, van de Straat, & Bracke 2015; Yuen & Balarajan, 1989). Previous research confirms that the unemployed have higher MHC and medication use than expected based on their mental health status, which has been interpreted as an indication of the medicalization of unemployment (Buffel, Dereuddre, & Bracke, 2015; Buffel, van de Straat, & Bracke, 2015).

An even more striking limitation of existing research into unemployment, health, and MHC utilization is the lack of cross national comparative research (Bambra & Eikemo, 2009). In the current context of high unemployment rates and health care expenditure in many wealthy democracies, and also austerity policies implemented in many European countries that have led to cutbacks in public expenditures, it is crucial to understand whether, how, and why unemployment drives MHC utilization differently in different nations.

In this study, we investigate first whether the relation between unemployment and MHC use, controlling for mental health status, varies across European countries. Second, we explore whether these differences across countries are patterned by a combination of unemployment policies as well as health care system characteristics, including disability benefits, which bridge the policy domains of welfare and health care. Third, we analyze how the level of generosity in both policy domains shapes the relation between unemployment and mental health care use. Analyzing these relations with data before and after the start of the recent economic recession in Europe, which sparked austerity policies in many countries, allows us to shed light on the role of austerity politics in connecting unemployment and mental health (Beatty & Fothergill, 2015).

We use cross national survey data from the Eurobarometer wave 64.4 (2005/2006) and 73.2 (2010), because these data are uniquely suited for our purpose: the samples are nationally representative, the institutional variation is vast (given that the Eurobarometer includes dozens of countries), and most importantly, unlike other cross national surveys the Eurobarometer includes questions about employment status, mental health status, and MHC-utilization. Prior research on the connection between unemployment and mental health has had to use mental health care utilization as a proxy for mental illness, but the Eurobarometer data uniquely allow us to relax the assumption of a close correspondence between MHC utilization and mental illness.

We find that the variation in the extent of medicalization is substantial, and is patterned by the combination of policies for unemployment benefits and health care. We demonstrate that the medicalization of unemployment occurs to varying degrees depending on the institutional context. We contribute new evidence to the ongoing comparative turn in medicalization research (Buffel, van de Straat, & Bracke, 2015; Olafsdottir, 2007, 2010), and show how welfare states form part of the institutional foundations for medicalization. Additionally, we observe that there is a decrease in GP consultations of the employed and unemployed, and psychiatrist consultations of the employed, irrespective of reported mental health, in countries with a cut in government expenditures, which may be an indication of an austerity effect.

Background

Medicalizing unemployment and the gaps in current medicalization research

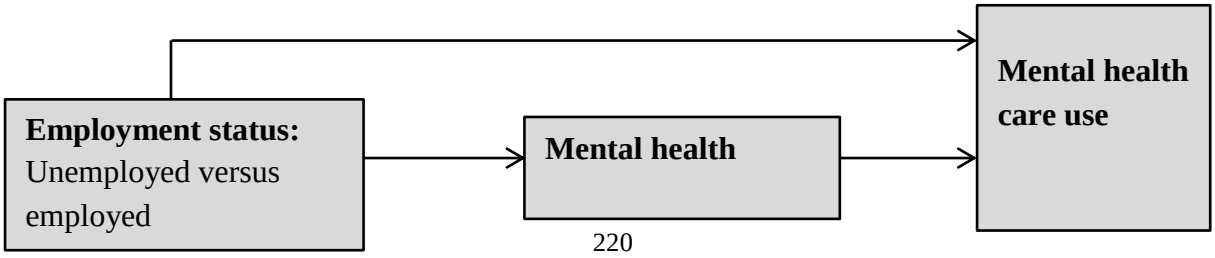
Medicalization describes a process by which non-medical (social) problems – such as unemployment – are defined and/or treated as medical problems (Conrad, 1992). Hitherto, the lion's share of studies about medicalization has taken a social constructivist approach. The focus is on the construction of new medical categories and its subsequent expansion of medical jurisdiction, such as studies of the medicalization of hyperactivity, menopause, posttraumatic stress disorder and alcoholism (Conrad, 2005). Such work has developed an extensive conceptual and empirical literature on the process and effects of medicalization, although the range of institutional contexts within which medicalization has been studied is

relatively limited. This limitation has truncated the range of institutional factors that have been considered as potential foundations for medicalization.

Our theoretical contribution to existing medicalization literature integrates insights from comparative political economy research in order to identify the institutional foundations for medicalization. We thus address several limitations of existing research inspired by medicalization theory, as developed by Conrad (1992), and Conrad and Leiter (2004). First, we develop a novel technique for measuring medicalization, building on related cross national comparative work on medicalization (Christiaens & Bracke, 2014; Moloney, Konrad, & Zimmer, 2011; Olafsdottir, 2007; Zheng, 2011). Our innovation is to measure and interpret MHC utilization beyond actual need, as an indicator of medicalization that can be compared across societies. In other words, and as presented on Figure 6, if the mental health care use of the unemployed is higher than that of the employed, and this can only partly be ascribed to their poorer mental health status, we see this as an indication of medicalizing unemployment.

As a result, medicalization of unemployment will be explored in one specific domain: the use of medical care in the mental health field. We have to be aware of the fact that medicalization of unemployment can also be examined in other societal areas, such as in national discourses on unemployment as a personal failure, a deviant position or psychological deficit. Moreover, unemployment can also be medicalized in order to create the possibility of relying on the more stable, less stigmatizing and often more generous disability benefits instead of unemployment benefits (Beatty & Fothergill, 2005). Labor-market inactivity of those who rely on disability benefits for income support is sometimes known as ‘hidden unemployment’; Arguments in the literature over the blurry boundary between the inactive and the disabled prevent precise identification of hidden-unemployment effects (Koning & van Vuuren, 2006). Our analysis addresses this in two ways: first, by excluding respondents who report being out of the Labor-market due to disability, and second, by controlling for public expenditures on disability benefits using data from Eurostat and other sources.

Figure 6: Theoretical model at the individual level: medicalization of unemployment



Second, we contribute to the developing cross national comparative approach to understanding medicalization (Olafsdottir, 2007, 2010). Our innovation in this regard, in view of the trend toward deinstitutionalization in the European mental health sector (Hermans, de Witte, & Dom, 2012), is to relax the assumption that physicians and hospitals are the (only) key actors in medicalization, and to recognize that multiple power actors – the pharmaceutical industry, policymakers, and patients or health care consumers – also contribute to the process of medicalization (Clarke & Shim, 2011; Conrad, 2005; Conrad & Barker, 2010). Third, we advance the integration of medicalization research across levels of analysis (Conrad, 2005). Our innovation here is to apply multi-level modeling techniques to evaluate the hypothesis that medicalization, as a cultural transformation that varies across institutional settings, shapes the health behavior of individuals, such as consulting with medical professionals.

In addition, multilevel analysis of data collected before and after the onset of economic recession and austerity policies allows us to address the impact of austerity on the medicalization of unemployment. Previous studies (Antonakakis & Collins, 2015; Karamessini & Rubery, 2013; Karanikolos et al., 2013; Kondilis et al., 2013; McKee, Karanikolos, Belcher, & Stuckler, 2012) have already indicated that cutbacks in government expenditures may have an impact on the employment and unemployment conditions, (mental) health outcomes, and the consumption of health services. Fiscal austerity has for example recently led to a decline in health care access in Greece (Kentikelenis et al., 2011).

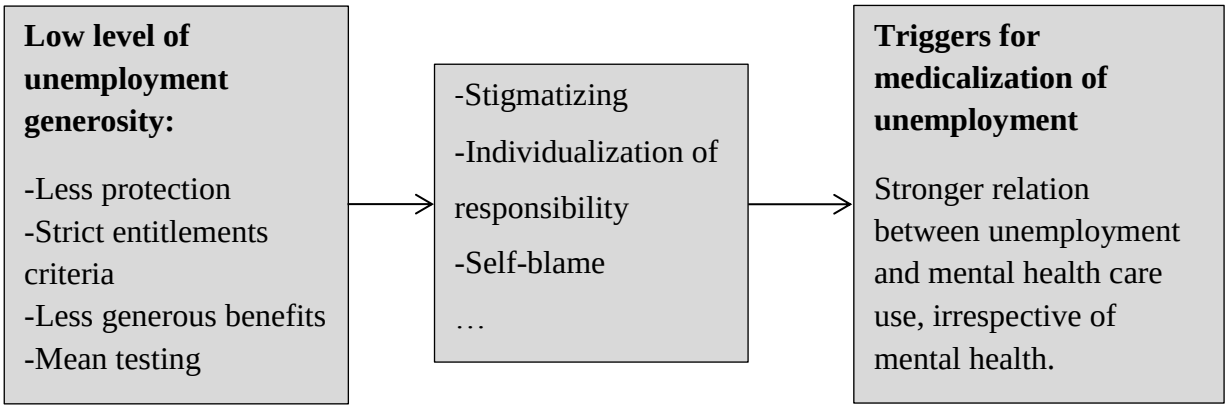
Unemployment Generosity and its Relation to Medicalizing Unemployment

We investigate which institutional characteristics create the best possibilities for medicalizing unemployment by examining two welfare domains. Specifically, we investigate whether the relation between unemployment and medical care use is moderated by welfare generosity in the areas of unemployment and health care. Our measure of generosity, taken from Scruggs et al. (2013), captures not only the level of benefit payments, but also the conditionality and strictness of entitlements that affect the level of coverage (e.g., targeted benefits versus universal benefits). Similarly, generosity of health care is the degree to which health care is

delivered as a social right of citizenship, rather than as something to be purchased in the medical marketplace. In line with the work of Scruggs (Scruggs, 2014), who builds on earlier work on decommodification by Esping-Andersen (1990), we use the term 'generosity' to engage with institutionalist research on welfare-state effects on population health (Beckfield et al., 2015), to highlight the improvements in measurement since Esping-Anderson's pioneering work, and to emphasize the use of more recent data and the coverage of more European countries.

Countries characterized by a low level of unemployment generosity are, for example, the United Kingdom (Bambra, 2005b; Jensen, 2008) and several Eastern European states. In these, the social protection system for the unemployed is relatively weak, with less generous income replacement rates and strict entitlement criteria, which may increase financial stress and lessen the feeling of self-control (Strandh, 2001). The maximum duration of a standard unemployment benefit is, for example in the UK, Estonia, Lithuania, Slovakia and Czech Republic, 26 weeks, which is the shortest duration of the European countries included in this study. Thereafter, the unemployed in the UK can only rely on mean-tested benefits. However, it is known that such benefits can be highly stigmatizing (Diderichsen, 2002; Eikemo et al., 2008; Rodriguez, Frongillo, & Chandrac, 2001). The unemployed are often considered to be responsible for their situation (Bambra & Eikemo, 2009), which can stimulate self-blame and the perception of having failed and being socially excluded. All these factors may be associated with medicalizing unemployment. As result we can expect that in countries with a low level of unemployment generosity, unemployment will be more strongly related to mental health care use (See Figure 7.a).

Figure 7.a: Theoretical model of the role of unemployment generosity, a combination of macro-level and individual level



Although a consistent negative relation between unemployment and well-being, health, and mental health has been observed in previous research (Bambra & Eikemo, 2009; Strandh, 2001; Wulfgramm, 2014), in countries with a high level of unemployment generosity , such as some Scandinavian countries (Esping-Andersen, 1987, 1990), the medicalization of unemployment may be weaker. There is strong protection for the unemployed through highly interventionist governments, which value principles such as universalism and social equality (Bambra & Eikemo, 2009). In Norway, for example, only 4 weeks of employment are needed to qualify for an unemployment benefit (this is the shortest qualifying period in Europe), while in Germany and Italy this is 104 weeks (two of the longest qualifying periods). In the more generous welfare states, the level of benefits is also relatively high, and since they are not means-tested but rather universalist, stigmatization may be lower. As a result, unemployment may be less stressful and related to reduced negative feelings of self-blame and personal failure. Unemployment may be considered more as a social problem, which requires a structural approach. This expectation is in line with a previous study, which found that mental health problems in Iceland are perceived more as social problems with social solutions, whereas in the United States they are viewed as individual problems requiring an individual approach; and are indeed more medicalized in the US (Olafsdottir, 2010) .

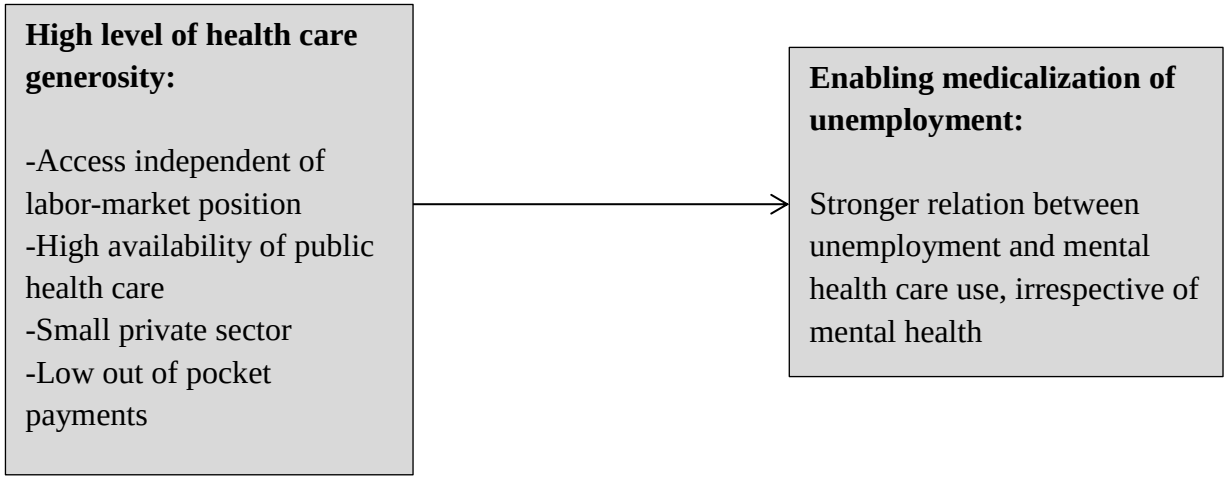
Health Care Generosity and its Relation to Medicalizing Unemployment

Institutional conditions and welfare policies may not only have an impact on how unemployment is experienced and how it affects individuals' mental health and demand for MHC and medication, but also on the access to and availability of the resources needed to make medicalization of unemployment possible. Therefore, in addition to the role of unemployment generosity, we also explore the impact of health care generosity.

Although health care is one of the key dimensions of all modern welfare states, it is relatively absent from major welfare-state theories, as is the case with Esping-Andersen's work (Bambra, 2005b; Jensen, 2008). In response to this limitation, Bambra (2005a, 2005b) introduced the concept of health care decommodification. Health care decommodification covers the provision of care, the degree to which this provision is independent from the

market, and the extent to which an individual's access is dependent on their market position. The indicators included in our health care generosity measurement assess the financing, provision, and coverage of the private sector, and are therefore useful indicators of the varied role of the market in a health care system. The larger the size of the private health sector, in terms of expenditure and consumption, the larger the role of the market; and therefore the lower the degree of health care generosity (Bambra, 2005a). The UK with 100 % coverage, and only 3,7 % private hospital beds (of the total bed stock) and 1,72 % private health expenditure (% of the GDP) has a relatively high level of health care generosity, while for example Belgium (99,0 % covered) and Germany (89,1 % covered) with respectively 61,8 % and 59,3 %, private hospital beds and 2,54 % and 2,74 % private health expenditure, have a relatively low level of health care generosity. We can expect that in countries with a high level of health care generosity, the unemployed will be less constrained in their medical care use (See figure 7.b).

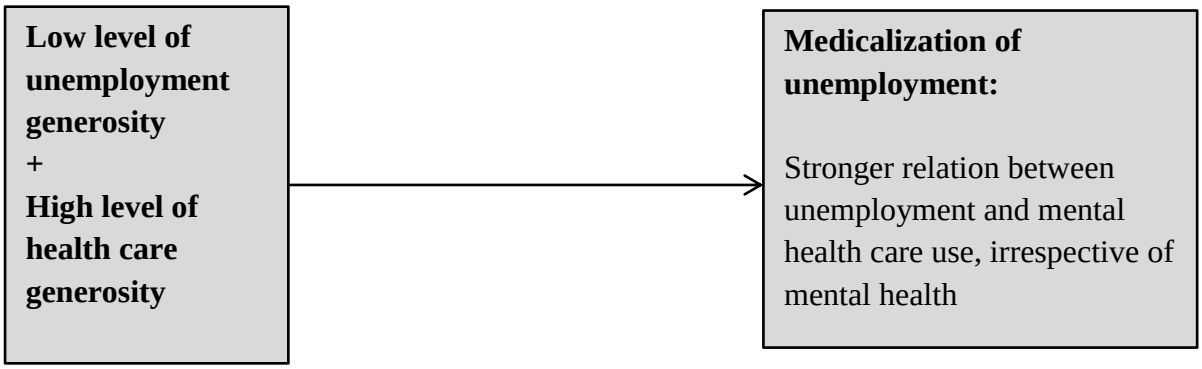
Figure 7.b: Theoretical model of the role of health care generosity, a combination of macro-level and individual level



In sum, based on this theoretical framework, we can hypothesize that a combination of low unemployment generosity and high health care generosity – with the UK as a very good illustration – will trigger the medicalization of unemployment. In this situation, the unemployed will possibly perceive greater stigmatization of and individual responsibility for

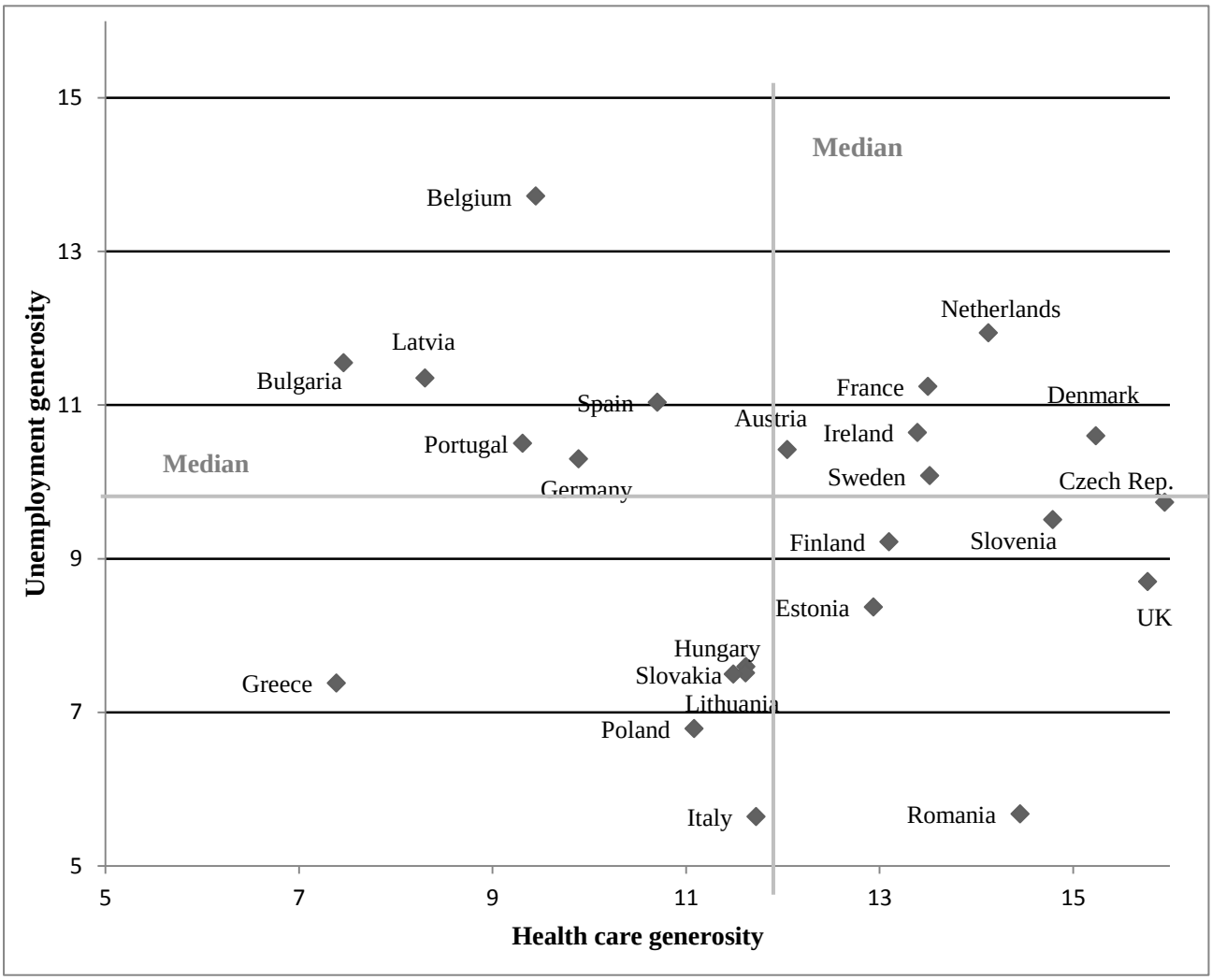
unemployment. These correlates of mental illness, then, may facilitate increased MHC, in generous healthcare systems.

Figure 8: Hypothesis concerning the impact of the combination of unemployment generosity and health care generosity



In Figure 9, the countries are shown according to their combined unemployment generosity and health care generosity (please see the measurement section below for details). Typical countries characterized by the inverse combination of above – namely with a quite high level of unemployment generosity, while a low level of health care generosity – are Belgium and Bulgaria, the first especially regarding its high unemployment generosity level, and the later concerning its low level of health care generosity. Greece is a typical country with low levels on both generosity measurements – especially following the implementation of austerity policies demanded by the EU and IMF – while the Netherlands, Denmark and France are modal countries with relatively high levels on both generosity measures.

Figure 9: Countries positioned in the two-dimensional graph of the unemployment generosity and the health care generosity measure



Data and methods

The Eurobarometer Survey

The current study uses data from the Eurobarometer rounds 64.4 (2005–2006) and 73.2 (2010)[36], which includes information about a general population aged 15 and above in more

[36] As a test for the validity of the data, we calculated the correlation between countries' unemployment rates derived from the Eurobarometer data, and the Eurostat national data (une_rt_a). The correlation is 0,789 (wave 2010) and 0,813 (wave 2005–2006). Additionally, we compared the Eurobarometer data (2005/6–2010) with the waves for 2006–2012 of the European Social Survey, which also include information about mental health

than 20 European Union member states. The European Commission has carried out the Eurobarometer survey since 1973, to monitor public opinion. The Eurobarometer occasionally includes special items, such as questions about smoking, which have been used in health research (e.g. (Pampel, 2001). To our knowledge, the Eurobarometer is the only cross nationalsurvey that combines (a) nationally-representative samples, (b) measurements of mental health status, (c) measurements of MHC utilization, (d) employment status, and (e) broad cross nationalinstitutional variation. The basic sample design used in all countries comprises a multi-stage, random (probability) sample of individuals within households within an area. Interviews were conducted face-to-face in the national language. To ensure nationally-representative samples, post-stratification weights are applied to restore specific town size, age, and gender distributions for the general population in each country, using the most recent census data. For our purposes, it is appropriate for small countries such as Belgium to be weighted the same as large countries such as Germany (Frohlich, 2001). Unweighted analyses yield estimations that are more valid and we do not weight the samples according to population size, as the population sizes of the sampled countries are highly heterogeneous[37]. In addition, because our interest is in the institutional foundations of medicalization, in this case national welfare-state policies regarding unemployment and health care. Following precedent in the literature (Bracke et al. 2010; Buffel, Dereuddre, & Bracke 2015), we merge data from East and West Germany, and from Northern Ireland and the rest of the United Kingdom.

The datasets include 24 European countries: Austria, Belgium, Bulgaria, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, the Netherlands, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, and the United Kingdom (UK).

(however, not on MHC use) and employment status (per country). The correlations are relatively high (see appendix 21 for more detailed information).

[37] Frohlich and colleagues (2001), they conclude that when the aggregated units, make sense, theoretically as units, in our case countries, it is more appropriate to carry out the analyses without weighting by the size of the unities. Unweighted analyses yield estimations that are more valid. Frohlich and colleagues (2001) also indicate that they know of no studies showing that the size of the population or a country, in itself affects the health status and need for health care services of the population. Hence, they state that it is not appropriate to weight analyses by the size of the population.

We use a subsample limited to respondents of working age (20–65 years old), which results in 37 477 respondents. Because no variable contains more than approximately 2 % missing values, the accumulated number of missing values is 1 171. These cases are omitted from the sample. As a result, the final sample contains information for 36 306 respondents. Descriptive statistics and the sample size per country are provided in Appendix 19.

Measurements

For the analysis of medical healthcare utilization, two dichotomous outcome variables for medical mental health care use were constructed: contacting a general practitioner (GP) and/or contacting a psychiatrist (each item coded 1 = yes; 0 = no).

The main independent variables are employment status and mental health status. Employment status contains three categories: employed (reference group), unemployed, and non-employed. Non-employed includes homemakers, students, retired people, and those unable to work due to illness or disability. Mental health is measured with the five-item version of the Mental Health Inventory (MHI-5), a subscale of the SF-36 Version 2 (Ware & Sherbourne, 1992). The scale measures depression and anxiety-related complaints, and ranges from 1 (good mental health) to 5 (poor mental health). If one or two items were missing, mean substitution was applied. The internal reliability of the MHI-5 scale is good (Cronbach's alpha is 0,803) and there is evidence for its validity (Mchorney, Ware, & Raczek 1993) and comparability across countries (Lehto-Järnstedt, 2003).

Age is measured in years. Period is a categorical variable: 2005–2006 and 2010, with 2005–2006 used as the reference category. To examine within-country differences in the provision of health care services, we control for the degree of urbanization using the following categories[38]: large town (reference category), rural area or village, and small or medium-sized town. This can be considered as a proxy for supply, because the availability of medical professionals may vary from a large city to a more rural area (Saxena et al., 2007). In addition, attitudes concerning MHC may differ by urbanization, with a greater reluctance to seek professional help in rural areas (Hoyt et al., 1997). We also control for marital status

[38] Type of community is only included as a control variable in the multilevel analyses, as the country-specific samples are too small to control in the country-specific logistic analyses; also for this additional variable.

(married [reference category], divorced, widowed, or single) and educational level. The respondents were asked at what age they finished full-time education, and the European Commission (Eurobarometer) provides a standard categorization for the answers: aged up to 15 (reference category), aged 16–19, and aged 20 and above. This corresponds approximately to primary, secondary, and tertiary education.

At the country level, our central independent variables are the level of unemployment generosity and the level of health care generosity. To construct the unemployment generosity measurement, we rely on Scruggs' updated "unemployment generosity measure" (Scruggs, 2007; Scruggs & Allan, 2006)[39], which is an adaptation of Esping-Andersen's (1987, 1990) original measurement. Scruggs uses z-scores to combine information on five indicators into a single measurement that facilitates interpretation. The five indicators are: the level of benefits paid to the unemployed (replacement rate), the qualifying period, the duration of benefits payments, the waiting period before entitlement is available, and the percentage of the working-age population covered by the program (see figure 10). The higher the benefits, the duration of payments, and the coverage, and the shorter the qualifying period and waiting time, the higher the degree of generosity (and vice versa). For more information see: http://cwed2.org/, where his dataset, the CWED2, is also publicly available (Scruggs, Jahn, & Kuitto, 2014).

For comparability with Scruggs's measurement, we adapt Bambra's measurement of the decommodification of health care (2005a, 2005b) for the construction of our health care generosity measurement, using the same z-score technique to combine the following indicators[40]:[5] Private health expenditure as a percentage of GDP, private hospital beds as a

[39] For some countries (especially Eastern and Central European), the unemployment generosity index was not available; only the separate indicators. We calculated the index for these countries based on the formula of Scruggs (Scruggs, Jahn, & Kuitto, 2014). As a validity check, we did the same for the countries for which we have the unemployment generosity score. The correlation between our own calculations and Scruggs' scores was nearly 1 (r = 0,987).

[40] Bambra's measurement (2005a, 2005b) is only constructed based on the initial OECD countries, similar to the work of Esping-Anderson (Yu, 2012). In our study, we only focus on European countries. As a result, there is less variation in the indicator of coverage, as almost every European country has a full coverage rate (near 100 %). In addition, several Central and Eastern European countries are included in our study. For these countries, Bambra's measurement could give an incorrect reflection of the real situation. Based on her three indicators of decommodification, some Central and Eastern European countries have relatively high scores (see additional information in Appendix 2), compared with other countries such as the Netherlands, Belgium, and Germany. This can mainly be ascribed to the fact that some of them still have very little private health care provision in terms of hospital beds (Yu 2012), despite the general trend toward privatization (King, Hamm, & Stuckler,

percentage of total bed stock, the coverage of the population by the public health care system, and household out-of-pocket (OOP) payments as a percentage of the total health expenditure[41]. The majority of information concerning private health expenditure, private hospital beds, and household OOP payments for health is available at: http://data.euro.who.int/hfadb/, and for the coverage percentages, we use data from the OECD (2012).

2009). Nevertheless, it is known that their health care systems are less developed, especially concerning MHC services (Eikemo et al., 2008; (WHO, 2005, 2011). The process of privatization in these countries has in particular led to higher OOP payments, which restricts the accessibility of health care services for the more vulnerable groups, such as the unemployed (King et al., 2009). Research has observed that the proportion of private health insurance spending is not necessary related to household OOP spending as a proportion of total expenditure on health (Quesnel-Vallée, Renahy, Tania Jenkins, & Cerigo, 2012). For example, in Estonia, Poland, and Hungary, expenditure on private health insurance is almost nonexistent, but OOP payments are relatively high (Quesnel-Vallée et al., 2012). This is a good indicator for assessing the accessibility of health care services and detecting financial barriers. Further, the increase in OOP payments and patients' fees is related to greater social inequality in the access to health care (Bambra, Garthwaite, & Hunter, 2014). Therefore we add this indicator, measured as the household OOP payments as percentage of the total health expenditure, to Bambra's health care decommodification measurement.

[41] By measuring the indicator in this way, we avoid the problem that it will also be an indicator of use, such as our outcome variable.

Figure 10: The indicators of the unemployment generosity measure and the health care generosity measure.

	CASH BENEFITS **Decommodification of labor, focus on unemployment** (Esping-Andersen, 1990)	**HEALTH CARE SERVICES** **Decommodification of health care** (Bambra, 2005)
1	Pre-taxation benefit replacement rates for a standard worker during the first 26 weeks of unemployment	Private health expenditure as a percentage of GDP - this factor refers to the extent of private financing by identifying the extend of a country's total income that is spent on private health care
2	Number of weeks employment prior to qualification for benefit	Private hospital beds as a percentage of total bed stock – this factor is used to express the extent of private provisions at a practical level within a health care system
3	Number of waiting days	The percentage of the population covered by the health care system – this shows the extend of general access provided by public health care system
4	Usual number of weeks in which benefit can be maintained	+ Our addition: household OOP payments as percentage of the total health expenditure
5	Percentage of the (relevant) population covered by the program.	

both country variables, we try to use as much as possible data for the periods 2004–2006 and 2009-2010. Data for the year of the interview and the preceding year is used, because the respondents were asked whether they had sought professional help in the year before the interview, and because of the expected time lag. This also results in the best model fit. Both generosity measurements are interval-level variables, which are grand-mean centered.

We also include additional macro-level control variables to guard against residual confounding. The effects of the nature of welfare policies concerning mental health and the MHC use of the unemployed may also partly depend on the condition of the country's Labor-market and the general economic capacity (GDP per capita) of a country. A short period of income support for unemployed people, for example, may be less associated with high levels of anxiety and insecurity in countries where the level of unemployment is low and unemployment tends to be of short duration, compared with countries with high job insecurity and unemployment rates (Gallie, Kostova, & Kuchar, 2001). In addition, we can expect that in countries with low unemployment, it will be less randomly distributed and as a result, will be

more frequently considered a personal characteristic or a direct or indirect consequence of health selection. Unemployment will be more stigmatizing, different to the norm, and treated as an individualized problem (Clark et al., 2003), which can be triggers for medicalization. Therefore, GDP per capita (Model 3) and unemployment rates (Model 4) are included in the multilevel analyses as country level control variables. (Information is derived from Eurostat). In addition to the generosity scores, GDP and unemployment rates per country are presented in Table 31.

In addition to unemployment generosity, we also construct a sickness[42] generosity measurement, based on Scruggs work (Scruggs & Allan, 2006; Scruggs, 2007). The correlation between a country's level of unemployment generosity and sickness generosity is 0,389. As a form of placebo test[43], where we estimate the association between two variables that are not expected to be associated, we re-estimate our analyses with sickness generosity instead of unemployment generosity (See appendix 22). In this way, we try to check whether the unemployment generosity measurement is important because it relates specifically to unemployment policies, or to the generosity of countries' social policies in general. In the case of the former, our argument for the importance of relying on a specific policy domain would be confirmed.

In most European countries sickness insurance is short-term, while disability insurance programs are long-term (mostly after one year); but for both a certificate of the physician is required. In the literature (Börsch-Supan, 2007), we found that generosity in terms of disability benefits are often measured by the level of public spending on disability. This information is available on Eurostat, and it is included in the models as additional control variable in order to take the possibility of 'hidden unemployment' via relying on disability benefits partly into account.

[42] Pension generosity is not adequate for a placebo test, as our sample contains only respondents of working age. Country scores on the sickness generosity measurement can be found in Appendix 20.

[43] We want to test whether a (= unemployment generosity) has an impact on the relation between b (= employment status) and c (= MHC use) via the interaction effect b x a. To see whether it is just a factor of generosity that has an impact on the relation b – c, we redo the analyses with another generosity dimension, namely sickness generosity (= d). If the impact of d x a on c is the same as b x a on c, this could be seen an indication of the fact which dimension of generosity is chosen (d or b) does not really care, it is more a general level of generosity of a country that is important.

In addition, although it was not the objective of this study, we cannot completely ignore the current debate about the claim that there is a movement from a passive toward an active welfare state in several European countries (Bonoli, 2010). Central to this are Active Labor-market Programs (ALMP) (Knotz, 2012; Knotz & Nelson, 2013; Powell & Barrientos, 2011; Strandh, 2001). The level of expenditure on these programs is often used as an indicator for the activation effort of a country (Knotz, 2012). Although we are aware that this is an approximate measurement, the expenditure on ALMP (as a percentage of GDP) is also included in the multilevel analysis as control variable.

Based on the economic crisis literature (Antonakakis & Collins, 2014, 2015; Karamessini & Rubery, 2013; Karanikolos et al., 2013; Stuckler et al., 2009), cuts in government expenditure on domains as health, unemployment, active Labor-market programs, family and housing, are used as proxy of fiscal austerity. Data for general government final consumption expenditure as a % of GDP is collected from the World Bank World Development indicators database (WDI). In line with Antonakakis' work (2015), we have divided general government final consumption expenditure by real GDP, as the expenditure measurement might be biased during a period when nominal GDP is falling. Because of a time lag of at least 1 year, information of 2005 for wave 64.4 (2005/2006) and 2009 for wave 73.2 (2010) is used. We calculate the mean government expenditure over the periods per country. The way in which the change in government expenditure is operationalized will be explained in the following section, as this is related to the statistical procedure we use. Country scores on the macro-variables are presented in Appendix 20.

Estimation

Our analyses consist of two parts: In the first part (1), the focus is on country specific differences in the mental health care use of the unemployed and how these are patterned by country's combination of unemployment generosity and health care generosity level. In the second part (2), we look for more general trends regarding the impact of the level of unemployment generosity and health care generosity on the relation between employment status and mental health care use, while taking several other important institutional (disability spending, total government spending and change therein) and macroeconomic factors (GDP, unemployment rate) into account.

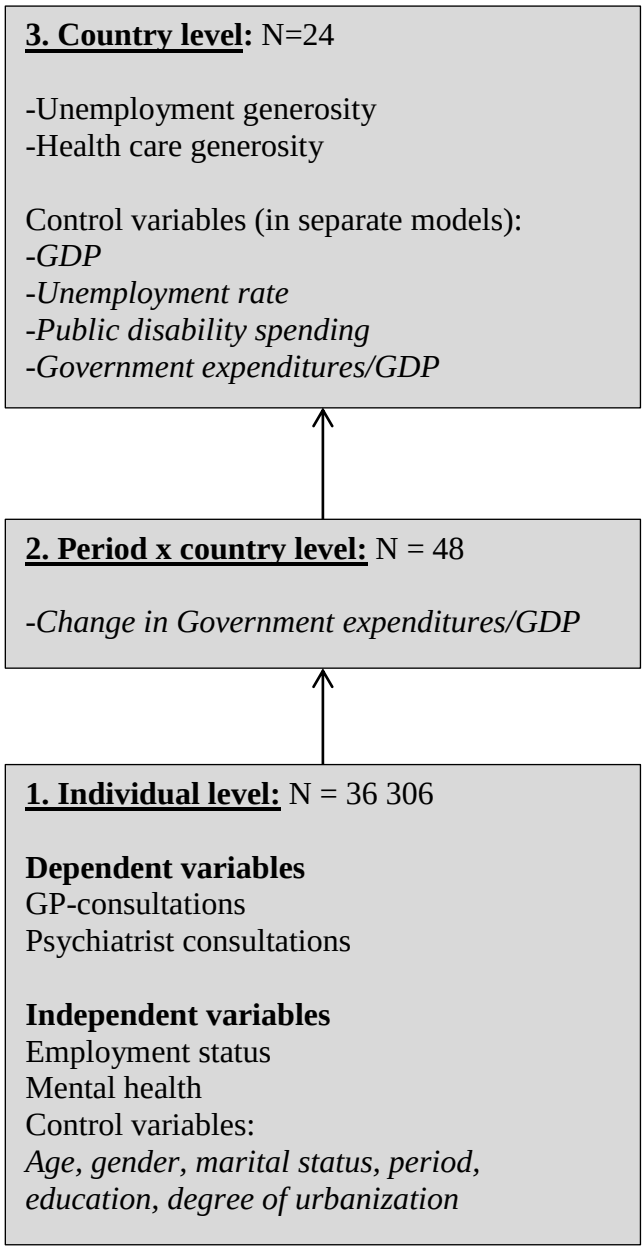
(1) Based on country-specific logistic regressions, we test the relation between employment status and MHC use, and to what extent this association can be ascribed to mental health. To compare the MHC use of the unemployed with that of the employed between countries, predicted probabilities (PP) for the unemployed and employed are calculated based on the Odds ratios resulted from the logistic regression analyses[44]. The differences ($PP_{unemployed}$ - $PP_{employed}$) between both PP are presented in Table 32. The use of PP is preferable to reporting differences in logistic regression coefficients, because PP do not require the assumption that the error variance is identical across countries (Beckfield, Olafsdottir, & Bakhtiari, 2013). First, the PP's are based on the models controlled for age, gender, marital status, education and period. Second, they are based on the adjusted models including mental health. The results based on Model 2 are presented in a bar chart (Figure 12) and related to country scores on the generosity measurement of unemployment and of health care. We have categorized the countries into 'groups' depending of whether country's score is above or below the median score of all countries included in the study on the unemployment generosity and the health care generosity measure (See Figure 10 above). This has resulted in four groups of countries with a specific combination of scores: a relatively high level on both generosity measures, a relatively low level on both measures, and on one measurement a relatively high score and a low score on the other (and visa verse). The four groups of countries do thus not represent a typology consisting of 4 'types' or are the results of a cluster analysis. They are just a pragmatic way to present our country specific results, which make it easier to discuss them in relation to the level of unemployment generosity and health care generosity.

(2) In addition, to actually test whether unemployment and health care generosity have a significant moderating effect on the relation between employment status and MHC use – irrespective of mental health – logistic multilevel analyses are performed, including cross-level interaction effects of employment status and the two generosity measurements. Multilevel analysis enables to take the clustering of our data in periods as well as countries into account. However two periods (2005/2006 and 2010) are not enough to use period as a separate level, and we face thus, like most repeated cross-sectional surveys, a problem of obtaining an adequate number of higher-level units at the period level (Van der Bracht & Van de Putte, 2014). But, given the cross national nature of the Eurobarometer, there is a solution

[44] The following formula is used: Predicted probability of the employed = [exp (a + b1X1 + b2X2)] / [1 + exp (a + b1X1 + b2X2)]. To compute the PP with this formula, we have used the mean score for the metric independent variables, and the proportions for the categorical variables.

to this lack of sufficient repeated waves, as has previously been described by Fairbrother (2014): considering the clustering of different waves clustered within countries. National-level time-series cross-sectional data has the advantage that it enables simultaneously modeling cross-sectional (or structural) effects that explain between-country differences, and longitudinal (or change) effects that explain within-country differences over time.

Figure 11: Presentation of the three-level design



In sum, as you can see on Figure 11, respondents, as units of the individual level (level 1), are nested within country-years ranging from 2005/2006 to 2010 at the period level (level 2), which are in turn nested within countries (level 3). To control for austerity measurements, we have estimated an additional model, where we take the average level of government expenditure into account as well as the change in expenditures. To include longitudinal (or change) effects at the period level and cross-sectional (or structural) effects of government expenditure at the country level in the same model, the longitudinal effects are group-mean centered, as described by Fairbrother (2014). Group-mean centering implies that the variables are measured as deviations from the group-mean, in this case the country mean of the government expenditure over the two periods. The cross-sectional effects at country level are grand-mean centered: the context variables are thus centered on the overall mean. In this way, the longitudinal effects of the change indicators are orthogonal to the cross-sectional effects.
Seven models per outcome variable (GP and psychiatrist consultations) will be estimated: Model 1 includes only the individual variables, without controlling for mental health, in Model 2 mental health is added, Model 3 contains the moderation effect of unemployment and health care generosity, controlled for GDP and in Model 4, 5 and 6, we include each time another macro-control variable, respectively unemployment rate, public disability spending and ALMP expenditures. In the last model (Model 7), the austerity effects are estimated.

All models are estimated in the statistical software package MLwiN using Markov Chain Monte Carlo (MCMC) estimation procedures, as this approach has been shown to be robust, particularly when including cross-level interactions (Stegmueller, 2013). We only consider random intercept models, as the random slopes are not significant. The results (OR and 95% Confidence Interval) are presented in Table 33 for GP consultations and Table 34 for psychiatrist consultations.

Results

First, we briefly examine the descriptive results, shown in Table 31. The results confirm that in every European country, the unemployed have significantly worse mental health than the employed (tested by one-way ANOVA). This is not only the case for self-reported general health, as found by Bambra and Eikemo (2009); mental health is also consistently worse among the unemployed throughout Europe. Linked to the poorer mental health of the

unemployed, the percentage of them who contact a GP/psychiatrist for mental health problems is higher than for the employed in most European countries. However, these differences are not significant for several countries, especially with regard to GP consultations (tested by Chi²).

The country scores for the unemployment and health care generosity measurements are shown in Table 31[45]. By combining them, we categorize the countries into four groups to make discussion of the results easier. In the first group, the countries included score relatively high (above the median) for both dimensions of generosity: Austria, Denmark, Netherlands, Sweden, France and Ireland. The second group contains countries with a relatively high level of unemployment generosity, but a low level of health care generosity: Belgium Germany, Portugal, Spain, Latvia, and Bulgaria.

[45] In Table 32, the coefficients for unemployed mental health status compared with those of the employed are also shown, controlled for age, gender, education, period, and marital status. The results are similar to these of the bivariate analyses (comparing means and ANOVA tests).

Table 31: Country scores on the generosity measurement of unemployment and health care, and countries' national unemployment rate and GDP

		Country	Unemployment generosity (a)	Health care generosity (b)	Unemployment rate (c)	GDP per capita (c)
1	**High unemployment generosity and high health care generosity**	Austria	10,42	12,04	5,5	31 450
		Denmark	10,60	15,24	5,4	39 400
		The Netherlands	11,94	14,12	5,3	33 100
		Sweden	10,08	13,52	7,8	32 250
		France	11,24	13,50	9,0	28 300
		Ireland	10,64	13,39	7,0	37 500
2	**High unemployment generosity and low health care generosity**	Belgium	13,72	9,45	8,3	30 300
		Germany	10,30	9,89	9,7	28 000
		Portugal	10,50	9,31	9,1	15 250
		Spain	11,04	10,70	12,7	21 900
		Latvia	11,35	8,30	13,1	7 200
		Bulgaria	11,55	7,46	9,7	3 800
3	**Low unemployment generosity and high health care generosity**	The UK	8,70	15,77	5,7	28 350
		Slovenia	9,51	14,79	6,2	15 850
		The Czech Republic	9,73	15,95	7,6	11 900
		Finland	9,22	13,10	8,5	31 150
		Estonia	8,37	12,94	10,5	9 350
		Romania	5,68	14,45	7,2	4 750
4	**Low unemployment generosity and low health care generosity**	Greece	7,38	7,39	10,1	19 050
		Hungary	7,59	11,62	7,8	8 950
		Italy	5,64	11,72	7,8	24 850
		Lithuania	7,51	11,62	11,0	7 350
		Poland	6,79	11,08	15,0	7 250
		Slovakia	7,50	11,49	15,6	9 350

Source: (a) CWED 2 data (generosity unemployment index; for countries without information on index, own calculations via Scruggs formula based on information of CWED 2 on the separate indicators); (b) Data from Eurostat, OECD and WHO, own calculations via formula of Scruggs; (c) Eurostat

The third group is characterized by low levels of unemployment generosity combined with relatively high levels of health care generosity: The United Kingdom, Slovenia, the Czech Republic, Finland, Estonia, and Romania. In this group in particular, we therefore expect to find evidence for the medicalization of unemployment. The fourth group contains countries scoring low for both generosity measurements and only contains Southern and Eastern European countries: Greece, Hungary, Italy, Lithuania, Poland, and Slovakia. As can be seen in the Table 31, also within the groups there are important differences. The UK and Romania are for example in the same group, but the level of protection of the unemployed in the UK is much higher than that of Romania.

The differences between the predicted probabilities of the unemployed vs. the employed for MHC utilization are shown in Table 32. These are adjusted for mental health (Model 2) and presented per country and country group on the bar chart (Figure 12). With regard to GP consultations, it is apparent in Table 32 that in the majority of the countries, the higher likelihood of the unemployed contacting a GP – as observed in Model 1 – can be ascribed to their poorer mental health, as included in Model 2. The higher predicted probability of MHC utilization of the unemployed only remains significant (controlling for mental health) in Denmark and the Netherlands (group 1), and the UK and Slovenia (group 3).

In more than half of the countries – and dispersed over the four groups – the unemployed are more likely to consult physicians than the employed, controlling for the individual-level variables (Model 1, Table 32). However, when also controlling for reported mental health (Model 2), the higher probability of psychiatrist consultations for the unemployed only remains significant in Denmark (group 1), Germany (group 2), and Slovakia (group 4). In Spain, characterized by moderate unemployment generosity and low health care generosity (group 2), the unemployed actually have a significantly lower probability of contacting a psychiatrist. As expected, group 3 has the most countries (the UK, Finland, & Slovenia) with a significantly higher predicted probability among the unemployed than the employed, after controlling for reported mental health.

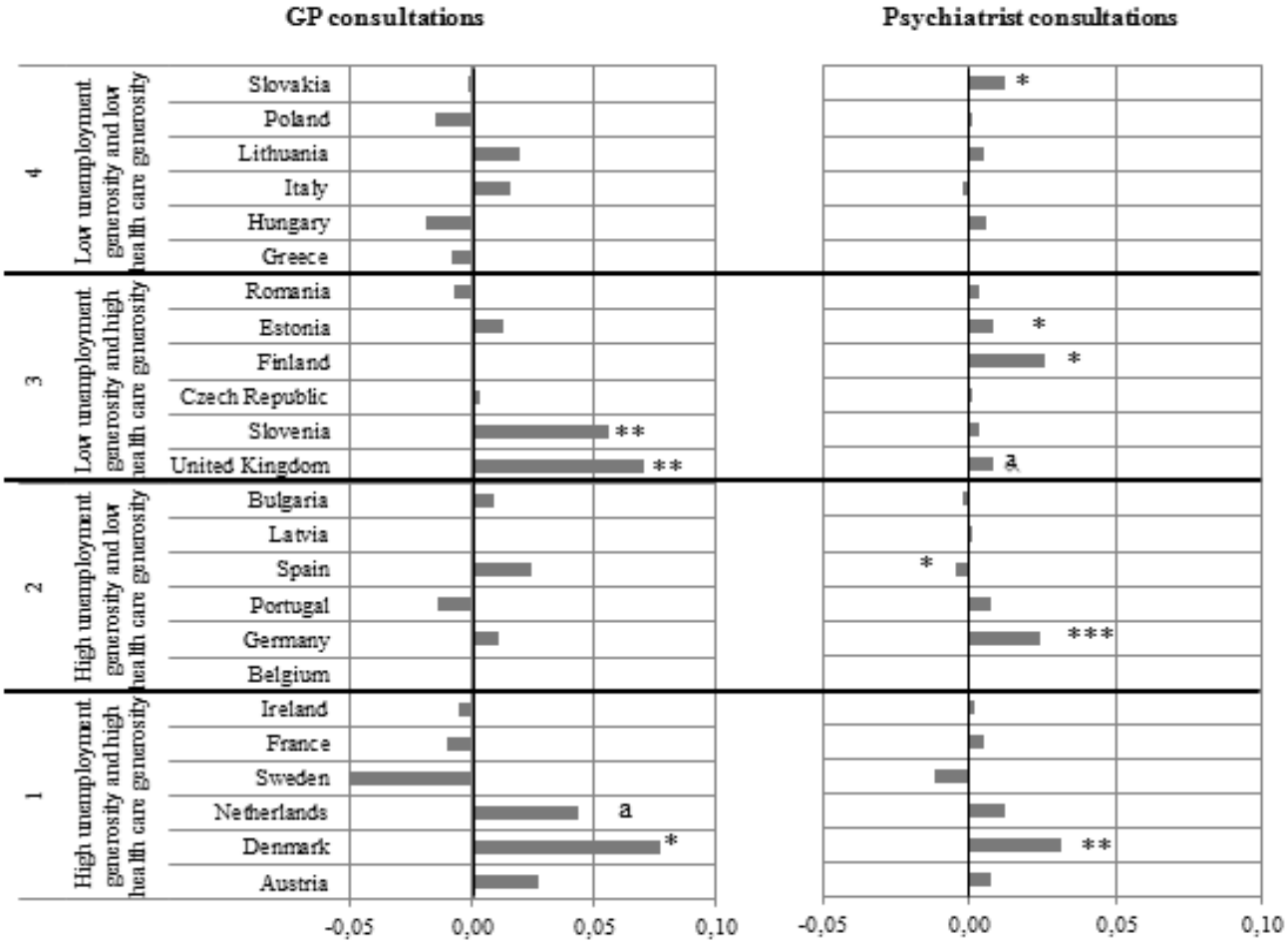
Table 32: Mental health and MHC use by the unemployed compared with the employed per country

			Mental Health		GP consultations			Psychiatrist consultations			
			b[1]	sig.	M1	sig.	M2	sig.	M1	sig.	M2	sig.
1	High unemployment generosity and high health care generosity	Austria	-0,471	***	0,122	***	0,028		0,032	**	0,007	
		Denmark	-0,258	***	0,113	***	0,077	*	0,054	***	0,031	**
		Netherlands	-0,354	***	0,085	**	0,044	a	0,039	*	0,012	
		Sweden	-0,269	***	-0,028		-0,052		-0,011		-0,012	
		France	-0,173	*	0,016		-0,010		0,023	*	0,005	
		Ireland	-0,214	***	0,036		-0,005		0,006	a	0,002	
2	High unemployment generosity and low health care generosity	Belgium	-0,169	**	0,020		0,001		0,006		-0,001	
		Germany	-0,253	***	0,051	***	0,011		0,061	***	0,024	***
		Portugal	-0,322	***	0,021		-0,014		0,026	*	0,007	
		Spain	-0,170	**	0,046	**	0,025		-0,007		-0,005	*
		Latvia	-0,225	***	0,020		0,000		0,006	**	0,001	
		Bulgaria	-0,256	***	0,019	a	0,009		-0,004		-0,002	
3	Low unemployment generosity and high health care generosity	United Kingdom	-0,341	***	0,135	***	0,071	**	0,015	*	0,008	a
		Slovenia	-0,106	a	0,070	***	0,056	**	0,017		0,003	
		Czech Republic	-0,303	***	0,031	a	0,004		0,012	a	0,001	
		Finland	-0,135	*	0,017		0,000		0,044	**	0,026	*
		Estonia	-0,371	***	0,056	*	0,013		0,028	**	0,008	*
		Romania	-0,343	***	0,023		-0,007		0,011	a	0,003	
4	Low unemployment generosity and low health care generosity	Greece	-0,324	***	0,005		-0,008		0,002		-0,001	
		Hungary	-0,197	**	-0,010		-0,019		0,027	*	0,006	
		Italy	-0,118	a	0,030		0,016		-0,003		-0,002	
		Lithuania	-0,166	**	0,038	*	0,020		0,017	*	0,005	
		Poland	-0,218	***	-0,003		-0,015		0,004		0,001	
		Slovakia	-0,169	**	0,014		-0,001		0,033	**	0,012	*

[1] b: The estimated coefficient of the unemployed (ref. employed) on mental health (MHI-5), while controlling for age, gender, education, period, and marital status.
[2] M1: the difference between the predicted probability of the unemployed and the employed, controlled for age, gender, marital status, education, and period.
[3] M2: also adjusted for mental health status.
(a) p < 0,100 *p < 0,050 **p < 0,010 ***p < 0,001

To investigate whether countries' unemployment rate and health care generosity have a significant moderating effect on the relation between unemployment and medical care use, we examine the results of the multilevel analyses (Table 33). In Model 1, we observe that the likelihood of contacting a GP for mental health problems (OR = 1,491; CI [1,328-1,679]) and contacting a psychiatrist (OR = 2,557; CI [2,002-3,232]) is significantly higher among the unemployed than the employed. After controlling for mental health status in Model 2, we see that the higher likelihood of contacting a GP for the unemployed (OR = 1,103; CI [0,976-1,244]) can be ascribed to their worse mental health. For psychiatrist consultations, this is only partly the case. However, the unemployed are still more likely to contact a psychiatrist (OR = 2,557; CI [2,002-3,232]) than the employed are, controlling for mental health.

Figure 12: Bar chart, PP unemployed – PP employed on mental health care MHC use per country, all adjusted for mental health and individual control variables



Despite the fact that we do not find evidence for medicalization of unemployment via GP consultations in Model 2, in Model 3 the results show that in countries with a high level of health care generosity (OR $_{\text{interation term}}$ = 1,083 CI [1,031-1,139]) and/or unemployment generosity (OR = 1,071 CI [1,007-1,141])), the unemployed have a higher likelihood of contacting a GP, controlling for mental health[46]. However, additional analyses performed separately for the countries with low and high unemployment rates (results not presented in table), show that the moderating effect of unemployment generosity is only significant in countries with a lower unemployment rate (OR = 1,093; CI [1,007-1,187]). Health care generosity has also a significant effect on GP consultations for mental health problems of the employed (OR $_{\text{employed}}$ = 1,095 CI [(1,014-1,176) but this positive effect was significantly lower than that on the mental health care use of the unemployed (OR $_{\text{unemployed}}$ = 1,095 x 1,083 = 1,186). Contacting a GP, regardless mental health status, is thus also among the employed (OR = 1,095 CI [(1,014-1,176]) more likely in countries with a higher level of health care generosity. Medicalization of unemployment via more specialized care use (psychiatrist consultations) is also stronger in countries with high generosity of health care (OR $_{\text{interaction term}}$ = 1,081 CI [1,011-1,156], see Model 3 of Table 34). Health care generosity has no significant effect on the psychiatrist consultations of the employed.

These interaction effects with unemployment and the generosity measurements remain similar, when the other control variables unemployment rate, public disability spending, and ALMP spending are taken into account, respectively in model 4, 5 and 6. There were no significant associations between these macro variables and GP contacts as well as psychiatrist consultations. In the last model (Model 7), where we control for possible austerity effects by including the context and change variable of government expenditures the main results remain significant. However, a positive change in government expenditures has a positive effect on GP-consultations for emotional and psychosocial problems, net of the actual mental health status and the average level of government expenditures (OR = 1,027; CI [1,003-1,052]). This means that in austerity contexts, cutbacks in government expenditures decrease the likelihood of contacting a GP, controlling for mental health. We also tested the interaction effect of change in government expenditures and employment status (results not presented in table) and

[46] Second-order interactions (unemployment generosity x health care generosity x employment status) are insignificant for the three outcome variables.

we found that for psychiatrist consultations, only among the employed there is an effect. In countries with a cut in government expenditures, the likelihood of contacting a psychiatrist

Table 33: Logistic multilevel analysis on GP consultations

	GP consultations																									
	Model 1			Model 2			Model 3			Model 4			Model 5			Model 6			Model 7							
	OR	CI		OR	CI		OR	CI		OR	CI		OR	CI		OR	CI		OR	CI						
Constant	0,081	(0,066	- 0,099)***	0,058	(0,095	- 0,095)***	0,073	(0,057	- 0,089)***	0,072	(0,057	- 0,090)***	0,072	(0,058	- 0,091)***	0,072	(0,057	- 0,089)***	0,067	(0,050	- 0,089)***					
Employment status																										
Unemployed	1,491	(1,328	- 1,679)***	0,976	(1,244	- 1,244)	1,105	(0,977	- 1,247)	1,103	(0,979	- 1,244)	1,105	(0,976	- 1,247)	1,107	(0,979	- 1,249)***	1,104	(0,977	- 1,251)					
Nonemployed	1,394	(1,287	- 1,514)***	1,122	(1,328	- 1,328)***	1,221	(1,124	- 1,328)***	1,222	(1,121	- 1,329)***	1,222	(1,123	- 1,330)***	1,224	(1,124	- 1,332)***	1,221	(1,121	- 1,330)***					
Age	1,014	(1,011	- 1,017)***	1,008	(1,014	- 1,015)***	1,011	(1,008	- 1,014)***	1,011	(1,008	- 1,014)***	1,011	(1,008	- 1,014)***	1,011	(1,008	- 1,014)***	1,011	(1,008	- 1,014)***					
Gender (ref. men)																										
Women	1,407	(1,308	- 1,512)***	1,178	(1,372	- 1,372)***	1,273	(1,179	- 1,375)***	1,273	(1,180	- 1,375)***	1,272	(1,180	- 1,373)***	1,273	(1,180	- 1,373)**$	1,274	(1,182	- 1,376)***					
Mental health				0,350	(0,385	- 0,385)***	0,366	(0,349	- 0,384)***	0,366	(0,349	- 0,384)***	0,366	(0,349	- 0,384)***	0,366	(0,349	- 0,384)***	0,366	(0,349	- 0,384)***					
Period (ref. 2005)																										
2010	1,184	(0,997	- 1,399)	1,117	(0,939-	1,317)	1,108	(0,917	- 1,333)	1,114	(0,943	- 1,334)	1,117	(0,916	- 1,326)	1,121	(0,931	- 1,336)	1,207	(1,000	- 1,455)**					
Unemployment generosity							1,009	(0,921	- 1,103)	1,021	(0,936	- 1,115)	1,006	(0,908	- 1,101)	0,994	(0,900	- 1,102)	1,022	(0,938	- 1,120)					
Health care generosity							1,095	(1,014	- 1,176)**	1,108	(1,018	- 1,208)**	1,085	(1,005	- 1,171)*	1,091	(1,017	- 1,166)*	1,103	(1,022	- 1,184)*					
Cross-level inteaction effects																										
Unemployed x unemployment generosity							1,072	(1,007	- 1,141)*	1,072	(1,006	- 1,140)*	1,072	(1,006	- 1,142)*	1,072	(1,007	- 1,143)*	1,071	(1,007	- 1,142)*					
Non-employed x unemployment generosity							1,009	(0,973	- 1,048)	1,010	(0,973	- 1,049)	1,010	(0,972	- 1,049)	1,010	(0,973	- 1,050)	1,010	(0,972	- 1,049)					
Unemployed x health care generosity							1,083	(1,030	- 1,140)**	1,083	(1,029	- 1,141)**	1,084	(1,030	- 1,141)**	1,083	(1,030	- 1,138)**	1,083	(1,029	- 1,140)**					
Non-employed x Health care generosity							0,997	(0,965	- 1,031)	0,997	(0,964	- 1,031)	0,998	(0,965	- 1,032)	0,998	(0,964	- 1,032)	0,998	(0,966	- 1,034)					
Macro control variables																										
GDP(x1000)							1,030	(0,868	- 1,219)																	
Unemployment rate										1,007	(0,938	- 1,078)														
Public expenditures on disability (x100)													1,015	(0,969	- 1,001)											
Active Labor Marktet Programs Expenditures																1,241	(0,745	- 2,007)								
Goverment expenditures																			1,002	(0,988	- 1,016)					
Change goverment expenditures																			1,028	(1,001	- 1,058)*					
Variance: Country	0,108	(0,037	- 0,240)	0,155	(0,050	- 0,343)	0,101	(0,010	- 0,251)	0,102	(0,006	- 0,254)	0,106	(0,016	- 0,254)	0,101	(0,017	- 0,258	0,107	(0,005	- 0,260)					
County x period	0,058	(0,025	- 0,140)	0,064	(0,028	- 0,160)	0,071	(0,030	- 0,174)	0,072	(0,030	- 0,196)	0,068	(0,030	- 0,169)	0,068	(0,029	- 0,163	0,060	(0,025	- 0,177)					

Models controlled for education, marital status, type of communities, and period; The metric variables are grand-mean centered

*p < 0,050 **p < 0,010 ***p < 0,001

Table 34: Logistic multilevel analysis on psychiatrist consultations

	Psychiatrist consultations													
	Model 1		Model 2		Model 3		Model 4		Model 5		Model 6		Model 7	
	OR	CI	OR	CI	OR	CI	OR	CI	OR	CI	OR	CI	OR	CI
Constant	0,009	(0,006 - 0,0130)***	0,006	(0,004 - 0,009)***	0,006	(0,004 - 0,009)***	0,006	(0,004 - 0,009)***	0,006	(0,004 - 0,009)***	0,006	(0,004 - 0,009)***	0,007	(0,004 - 0,013)***
Employment status														
Unemployed	2,557	(2,002 - 3,232)***	1,605	(1,247 - 2,052)***	1,636	(1,261 - 2,104)***	1,636	(1,264 - 2,090)***	1,637	(1,265 - 2,098)***	1,642	(1,276 - 2,109)***	1,644	(1,272 - 2,111)***
Nonemployed	2,560	(2,130 - 3,068)***	1,998	(1,662 - 2,401)***	2,038	(1,692 - 2,469)***	2,038	(1,687 - 2,462)***	2,042	(1,697 - 2,457)***	2,042	(1,687 - 2,472)***	2,044	(1,689 - 2,472)***
Age	1,007	(1,000 - 1,013)	1,001	(0,994 - 1,009)	1,001	(0,994 - 1,009)	1,001	(0,994 - 1,008)	1,001	(0,994 - 1,000)	1,001	(0,994 - 1,008)***	1,001	(0,994 - 1,008)
Gender (ref. men)														
Women	1,225	(1,039 - 1,457)**	1,043	(0,881 - 1,236)	1,045	(0,882 - 1,239)	1,042	(0,881 - 1,234)	1,042	(0,878 - 1,232)	1,044	(0,878 - 1,240)	1,043	(0,883 - 1,234)
Mental health			0,246	(0,223 - 0,272)***	0,245	(0,223 - 0,270)***	0,245	(0,222 - 0,269)***	0,245	(0,222 - 0,270)***	0,244	(0,222 - 0,269)***	0,841	(0,688 - 1,023)
Period (ref. 2005)														
2010	0,820	(0,685 - 0,981)**	0,792	(0,657 - 0,958)***	0,791	(0,651 - 0,947)***	0,790	(0,647 - 0,951)***	0,791	(0,655 - 0,960)***	0,794	(0,656 - 0,957)***	0,245	(0,223 - 0,270)***
.Unemployment generosity					1,171	(0,984 - 1,394)	1,171	(0,984 - 1,394)	1,115	(0,926 - 1,320)	1,115	(0,926 - 1,320)	1,171	(0,984 - 1,394)
Health care generosity					1,084	(0,951 - 1,239)	1,117	(0,968 - 1,293)	1,050	(0,924 - 1,191)	1,054	(0,931 - 1,200)	1,058	(0,935 - 1,207)
Cross-level inteaction effects														
Unemployed x unemployment generosity					0,940	(0,824 - 1,071)	0,940	(0,825 - 1,070)	0,941	(0,823 - 1,074)	0,940	(0,825 - 1,069)	0,936	(0,821 - 1,068)
Non-employed x unemployment generosity					0,923	(0,842 - 1,012)	0,922	(0,840 - 1,010)	0,923	(0,839 - 1,013)	0,923	(0,839 - 1,010)	0,920	(0,839 - 1,011)
Unemployed x health care generosity					1,081	(1,011 - 1,156)*	1,081	(1,011 - 1,156)*	1,081	(1,011 - 1,156)*	1,081	(1,011 - 1,156)*	1,067	(1,009 - 1,149)*
Non-employed x Health care generosity					1,015	(0,938 - 1,096)	1,017	(0,943 - 1,097)	1,016	(0,940 - 1,099)	1,017	(0,941 - 1,099)	1,015	(0,939 - 1,094)
Macro control variables														
GDP(x1000)					1,007	(0,748 - 1,344)								
Unemployment rate							1,055	(0,937 - 1,186)						
Public expenditures on disability (x100)									1,032	(0,940 - 1,101)				
Active Labor Marktet Programs Expenditures											1,872	(0,908 - 4,450)		
Goverment expenditures													0,983	(0,958 - 1,012)
Change goverment expenditures													1,031	(0,993 - 1,076)
Variance: Country	0,245	(0,107 - 0,539)	0,438	(0,222 - 0,900)	0,369	(0,175 - 0,830)	0,354	(0,167 - 0,787)	0,344	(0,161 - 0,758)	0,327	(0,151 - 0,751)	0,345	(0,159 - 0,730)
County x period	0,014	(0,001 - 0,107)	0,013	(0,001 - 0,107)	0,015	(0,001 - 0,100)	0,018	(0,001 - 0,117)	0,017	(0,001 - 0,112)	0,016	(0,001 - 0,106)	0,014	(0,001 - 0,145)

Models controlled for education, marital status, type of communities, and period; The metric variables are grand-mean centered

*p < 0,050 **p < 0,010 ***p < 0,001

has decreased among the employed, irrespective of their mental health status (OR employed = 1,075 CI [1,011-1,142]). There is also a period effect on specialized mental health care use: the likelihood of contacting a psychiatrist is significantly lower in 2010 than in 2005-2006, which can also be interpreted as an association that is consistent with an austerity or recession effect (OR = 0,792 CI [0,657-0,958]).

The results of the 'placebo test', where we replace unemployment generosity by sickness generosity in the models, show that sickness generosity does not play any role when considering the relation between unemployment and MHC use, as no moderating effects of sickness generosity are observed (See Appendix 22). This suggests that the institutional approach, which highlights the importance of the use of specific policy domains and welfare services (Beckfield et al., 2015; Bergqvist, Yngwe, & Lundberg, 2013), is useful in explaining social inequalities – in this case between the employed and unemployed – in MHC use.

Discussion

In this study, we addressed three research questions: Does the relation between unemployment and mental health care use, controlling for reported mental health status, vary across European countries? Are these differences patterned by a combination of unemployment and health care generosity? And more generally, how is the level of unemployment generosity and health care generosity linked to the relation between employment status and mental health care use, when other important institutional factors (public disability spending, changes in government spending, economic capacity, and Labor-market conditions) are taken into account?

Before discussing the main findings, we note the key limitations of this study. The first limitation is the divergent timing between measurement of unemployment and measurement of MHC utilization. The main independent variable – employment status – indicates the situation of respondents at the time of the interview. However, the items concerning professional care seeking refer to the preceding twelve months, and the period of reference for experiencing depressive feelings is the preceding month. As a result, we cannot use time priority to bolster causal inferences. Accordingly, we addressed threats to causal inference in several other ways. Reverse causality is a concern if individuals with poorer health are more

likely to be unemployed. Because we separate respondents who were inactive due to illness or disability from those who were unemployed, we reduce this possible reverse causality. The models were also re-estimated separately for countries with high unemployment rates and those with low unemployment rates, because we can expect that in countries with low unemployment rates, selection effects are more likely, as unemployment is less randomly dispersed. However, we did not find evidence consistent with this selection scenario. Nevertheless, with the available data, we are simply unable to confirm the direction of any causal effects. Based on the meta-analysis by Paul and Moser (2009), which also includes information concerning longitudinal studies, we know that the mental health selection effect on unemployment and job searching is relatively weak. Selection bias is possibly also more of a concern when the outcome variable of interest is mental health instead of MHC use, as it is less likely that the use of care has an impact on becoming unemployed, irrespective of mental health.

Two additional limitations are also related to the source of survey data. First, the response rates for waves 64.4 and 73.2 of the Eurobarometer are not available from Eurostat or any other source. We are left with just one tool to address the representativeness of the Eurobarometer surveys: the post-stratification weights, which we do use. Second, income measurement is omitted from the Eurobarometer surveys we use, which prevents us from assessing the role of household material resources in accessing mental health care.

Bearing in mind these limitations, our study produces three main findings. First, in addition to the fact that unemployment is consistently related to poorer mental health and general health (Bambra & Eikemo, 2009), we find that in several European countries, unemployment is medicalized at least to some degree. This medicalization, which we quantify as the remaining association between unemployment and MHC utilization, after controlling for reported mental health status, varies substantially across national context. In the UK, for example, the higher specialized care consumption of the unemployed compared to the employed remain after controlling for differences in mental health between the employed and unemployed. In Spain, the unemployed have a lower likelihood of contacting a psychiatrist regardless of their poorer mental health.

Second, the variation in the extent of medicalization of unemployment is significantly patterned by a country's level of unemployment generosity, and especially health care generosity. It is the institutional approach to welfare state effects on health (Beckfield et al., 2015; Bergqvist et al., 2013), whereby unemployment and health care generosity are addressed as separate welfare domains (Bambra, 2005a; Kasza, 2002), that allows for this insight. In several countries, policy is generous in one domain but not the other. The UK is a good example of a country with a low level of unemployment generosity combined with a high level of health care generosity. Finland, Estonia, the Czech Republic, Romania, and Slovenia also have this combination. Based on our theoretical framework, this combination was hypothesized to create the most favorable institutional conditions for medicalizing unemployment. In line with this hypothesis, we found indeed that in the UK, Slovenia, Finland and Estonia, MHC utilization among the unemployed is significantly higher than expected based on their mental health, at least for one type of medical care (GP or psychiatrist consultations). Romania and the Czech Republic, however, did not confirm our hypothesis. In Romania this might be explained by its exceptionally low unemployment generosity, which may lead to high financial insecurity among the unemployed. In addition, Romania's high health care generosity is in particular due to a very low provision of private hospitals and low private health expenditure.

Third, by testing the actual moderating effect of both generosity measurements on the relation between unemployment and MHC use, a high level of health care generosity in particular is highlighted as an important institutional factor for unemployment medicalization via medical professionals. Bambra's (Bambra, 2005a, 2005b) adjusted and updated health care generosity measurement accentuates the private-public mixture. A large proportion of private health insurance is provided through the workplace (Colombo & Tapay, 2004). As a result, in countries with high expenditures on private health insurance and services, the employed often benefit more than the unemployed, for whom it is more difficult to use private services and to obtain private insurance (Colombo & Tapay, 2004). Moreover, more private (insurance) expenditure, private service provision (relative to public expenditure and provision), and higher out-of-pocket payments increase social inequality in health care access, especially by harming the most vulnerable (Bambra, Garthwaite, & Hunter, 2014), such as possibly the unemployed. By contrast, in countries with high health care generosity, the structural

thresholds for contacting a medical professional are lower and the access to and availability of medical resources independent (or minimally dependent) of an individual's position in the labor-market and/or their economic capital. This may explain why we find that the unemployed in these countries are more likely to utilize mental health care services.

With regard to the role of unemployment generosity in the relation between unemployment and GP consultations, the results contradict our expectations that a low level will trigger medicalization of unemployment. However, additional analyses show that this is only the case in countries with a relatively low unemployment rate. Therefore, in a context where the chances of (health) selection effects are higher, where unemployment is less randomly distributed, and where any social-norm effect of unemployment is virtually absent (Clark et al., 2003), higher levels of unemployment generosity may strengthen the medicalization of unemployment via GP consultations. Denmark and the Netherlands have this combination of characteristics, and for these countries, we indeed find higher primary care use by the unemployed than expected based on their mental health. A possible explanation can be found in the pro-poor distribution of GP consultations, also when need is taken into account (van Doorslaer, Koolman, & Jones, 2004).

One of the strengths of the study is that we have taken possible austerity effects into account. In countries such as Greece and several Eastern European countries where there are cutbacks in general government expenditures between 2005 and 2009, the likelihood of contacting a GP for emotional or psychosocial problems was lower compared to countries without a decrease in government expenditures, controlling for individual mental health status and the average level of government expenditures. In several countries, the GP has a gate keeper function (Wendt, 2014), referring patients to the most adequate care, which makes this finding especially worrisome. Also other recent studies (De Vogli, 2013; Kondilis et al., 2013; Kondilis et al., 2012; McKee et al., 2012) have already warned of austerity effects on health outcomes.

While we found in general that psychiatrist consultations were reduced in 2010 compared to 2005-2006, only psychiatrist consultations of the employed were less likely in countries with a cut in government expenditures. In previous research (Buffel, van de Straat, et al., 2015), we

found that in countries with a decline in the GDP growth rate (as indicators of the strength of the recession) the employed are less likely to contact a psychiatrist, controlling for their mental health. A possible explanation for the findings that, the austerity effect and the crisis effect only applies to working people may be that the employed may avoid specialized care use for fear of being labeled as sick and thus acquiring a treatment stigma (de Belvis et al., 2012). In slack labor-markets, such stigma could more easily result in job loss (Gene-Badia et al., 2012), perhaps especially in countries most strongly affected by the economic crisis and austerity policies.

In addition, our models incorporated the level of public disability spending, as studies have already observed that a high level of spending (especially in countries with less generous unemployment benefits) can lead to 'hidden unemployment', which can also be interpreted as a kind of medicalization of unemployment via relying on disability benefits. Future research is needed to disentangle more directly this part of medicalization of unemployment, as has already been done for 'the pathologization of poverty' (Hansen, Bourgois, & Drucker, 2014) or 'monetizing illness' (O'Brien, 2015).

Finally, related to the recent activation debate, some researchers are also focusing on the shifting balance between the rights and responsibilities of the unemployed and the growing conditionality requirements for unemployment benefits (Knotz, 2012); Knotz and Nelson 2013). We need to be cautious about our results in this regard, because Knotz argues that if there is increasing conditionality, generosity scores will be less accurate (Knotz & Nelson, 2013). For example, if there is a reasonably generous unemployment benefits system, but the unemployed cannot refuse certain jobs without losing their entitlements, generosity is not that high, as it refers to the fact that the benefit claimants are more dependent on the labor-market. This may be a possible explanation for why we find convincing support for the expected positive impact of health care generosity on medicalizing unemployment, and less support for the hypothesized negative effect of unemployment generosity.

CHAPTER 12

Conclusion and discussion

The overarching aim of this dissertation is to provide a valuable contribution to existing literature by integrating the medicalization perspective and the sociology of work and unemployment. I have tried to answer the following main research questions: How is unemployment and precarious employment or job insecurity) related to mental health care and medication use for mental health problems, and to what extent can I attribute these relations to differences in mental health? By combining the biomedical need approach with literature concerning medicalization, and applying this to the relationship between unemployment and mental health care use, I formulated three hypotheses: The need hypothesis, the unmet need hypothesis, and the medicalization hypothesis. In light of the recent economic crisis in Europe, and by paying attention to gender differences, these hypotheses were tested using European survey data for the periods 2002, 2005–2006, and 2010–2012.

To obtain a proper understanding of the mental health care use of the unemployed, it is not only necessary to address the relations at an individual level, but also important to understand whether, how, and why (1) the prevailing social norm of unemployment, (2) the labor-market conditions and changes therein, and (3) the provision and accessibility of health care and the social protection of the unemployed, drives the mental health care and medication use of the unemployed, differently in different countries. The medicalization of unemployment is quantified throughout my empirical studies as the remaining association between unemployment and mental health care use, after controlling for reported mental health status. This approach has enabled me to explore the cross-national variation in the medicalization of unemployment and to combine the individual level with the macro level. To the best of my knowledge, this study is the first to carry out cross-national comparative research on medicalization by using multilevel techniques, and incorporating macroeconomic factors and institutional arrangements.

In this last chapter of my dissertation, I first summarize the results of the different empirical papers, and develop a general overview. In addition, the limitations of the empirical works are

discussed, and also how the work provides suggestions for future research. Last, I discuss the implications of this thesis for policymakers.

1. General results

The mental health status of the unemployed and those with precarious work

Two hypotheses are proposed in literature about the mental health of the unemployed: The selection hypothesis and the causation hypothesis. Briefly, the first argues that individuals with mental health problems are more likely to be without a job (Arrow, 1996). The second states that unemployment causes mental health problems, because of the subsequent loss of income, status, time structures, social inclusion, and the increased stress, insecurity, and feelings of powerlessness (Jahoda, 1981; Zapf, Dormann, & Frese, 1996; Janlert and Hammarstrom, 2009). Although most evidence has been found for the causation hypothesis, some studies have observed selection effects (Paul, 2006; Paul & Moser, 2009). We have to keep in mind that selection and causation are not mutually exclusive, and may reinforce each other.

Throughout my empirical work, the higher likelihood of mental health problems among the unemployed than among the employed has been robustly established (studies 1–5). This was confirmed for each wave (2002, 2005–2006, 2010, 2012) of the surveys (Eurobarometer, SHARE, and ESS) and regardless of the scale that was used to assess mental health problems (MHI-5, EURO-D, or CES-D 8). After taking the most important confounding factors into account – such as income, wealth, perceived financial problems, social distance toward people with a mental health problem, degree of urbanization, educational level, age, gender, marital status, migratory status – the findings remain significant.

As expected and in line with some previous work, not only the unemployed, but also those employed in precarious or non-standard work, or those who perceive job insecurity, have worse general health and mental health than the employed with standard job conditions and with job security (Beale & Nethercott, 1985; Benach et al., 2014; Jin, Shah, & Svoboda, 1995; Kinnunen, Feldt, & Mauno, 2003; McKee-Ryan & Harvey, 2011; Virtanen et al., 2005). Further, the frequently cited objective parameter of job insecurity, namely temporary work

(Virtanen et al., 2005) – a job with a limited contract, or no contract – is related to more mental health problems compared with employment in a job with an unlimited contract (Study 3). Among men, part-time work is also related to more depressive symptoms than being employed under standard job conditions (Study 3).

Even within the group of the unemployed, important differences in mental health are found. Unemployed people who are not actively looking for work – also termed the non-official or "discouraged unemployed" (Dooley, 2003) – have a higher likelihood of being more depressed than the "official" unemployed (ILO, 2006) or those who are still looking for new work (Study 3). Among men, evidence is also found for the hypothesis that the non-displaced unemployed are more depressed and have a higher chance of becoming a heavy drinker than those who lost their job due to a work place closure (the displaced unemployed) (Hypothesis 2.2). However, these displaced unemployed men and women still have worse mental health status than the employed. This finding provides strong evidence for the *causation hypothesis* of unemployment, because selection bias among the displaced unemployed is reduced to the minimum (Study 2).

In sum, in line with the majority of existing research (Paul, 2006; Paul & Moser, 2009), the unemployed are found to have a higher likelihood of mental health problems. Based on previous meta-analyses (Paul, 2006; Paul & Moser, 2009), and the evidence for the causation hypothesis via the displaced worker approach (Study 2), I can conclude that unemployment can negatively affect mental health status. However, of course health selection effects in unemployment cannot be ignored (Heggebo & Dahl, 2015), as other research has already shown that unhealthy people have a higher likelihood of becoming and remaining unemployed. In addition, going beyond the distinction between unemployment and employment is shown to be very important, as job insecurity and non-standard job conditions are also risk factors for poor mental health.

The relation between employment status and mental health care use

My next question was how the worse mental health of the unemployed and those with job insecurity – on the assumption that this is an indicator of higher need for mental health care (Bijl & Ravelli, 2000) – is translated into mental health care use. Previous studies (Beale &

Nethercott, 1987, 1988; Kraut, Mustard, Walld, & Tate, 2000; Kuhn, 2007; Montgomery, Cook, Bartley, & Wadsworth, 1999; Rugulies et al., 2010) have already found that unemployment is related to greater health care use, but researches have rarely linked these findings to the medicalization perspective and tested whether the differences in mental health care and medication use between the unemployed and the employed can be explained by differences in the need for care.

By integrating the biomedical model and the medicalization perspective, I was able to formulate three hypotheses, as noted above: The need-based hypothesis, the unmet need hypothesis, and the medicalization hypothesis. I tested these hypotheses by examining the relations between employment status and mental health care use, controlling for actual mental health. If the differences in mental health care and antidepressant use can be explained by differences in the need for care, the need hypothesis is confirmed. If not, and the unemployed have less mental health care use than the employed, evidence is found for the unmet need hypothesis. Or instead, if the unemployed have higher mental health care use, then the medicalization hypothesis is supported.

First, without taking mental health into account, my four studies on health care use (studies 1, 2, 4, and 5) show that the higher need is clearly reflected by a higher likelihood of the unemployed contacting a GP and/or a psychiatrist for emotional or mental health complaints. In addition, medication use for anxiety and depression is found to be higher among the unemployed (Study 1 and Study 2).

In the next step, mental health status was introduced. In particular with regard to general health care use (GP consultations) for mental health problems, there is evidence to support the need-based hypothesis (Hypothesis 1.1). The positive relation between the unemployed (Study 1 and study 4, and in Study 2 and Study 4 only for men) and GP consultations can be ascribed to differences in the need for care. For women, the positive relation between job insecurity and GP consultations can also be explained by mental health (Study 1), while for men this is the case for higher antidepressant consumption by the employed with job insecurity (Study 1). However, for a few subgroups of the unemployed (for example women between 50 and 65 years of age) and under some specific institutional and macroeconomic conditions (see below), I found evidence of higher general health care use than would be

expected based on general and mental health status, which supports the medicalization hypothesis (Hypothesis 1.3)

I did not find evidence for the unmet need hypothesis (Hypothesis 1.2), with the exception of the country-specific results for Spain concerning psychiatrist consultations (Study 5). After taking mental health status into account, the Spanish unemployed are less likely to contact a psychiatrist. This can be partly explained by the institutional characteristics of Spain, which are addressed below.

The majority of the results are in line with the medicalization hypothesis (Hypothesis 1.3). The unemployed are more likely to consult a psychiatrist than would be expected based on their mental health (studies 1, 4, and 5). Moreover, unemployed men and women are also more likely to use antidepressants, irrespective of their need for care, and among men, also even after taking mental health care use into account (Study 1). These findings could be interpreted as using medical care and/or antidepressants not merely as a response to mental health problems, but as a way to cope with the situation of being unemployed or having a job with a high level of insecurity. Stress and other negative feelings resulting from unemployment or job insecurity could lead to isolated non-specific symptoms, which are reclassified as diseases for which medical treatment is sought and for which antidepressants are prescribed (Holmqvist, 2009).

I want to accentuate the difference between contacting a medical professional and using medication, because for the latter I also took mental health care use into account. When contacting a medical professional, the initiative lies mainly with the patient/consumer, whereas antidepressants need to be prescribed by a medical professional (although the patient can still choose whether or not to take them). The latter is therefore more complex, and by controlling for contacting a medical professional for mental health problems, I tried to examine whether a medicalization effect of the unemployed is mainly initiated by themselves and/or or also on the decision of and advice from medical professionals. For women, medical professionals do not seem to advise and prescribe for the unemployed more than the employed, because the higher likelihood of unemployed women taking antidepressants can be mainly ascribed to their greater likelihood of contacting a GP or psychiatrist, irrespective of their mental health status. For the male unemployed, the results seem to also indicate that

medical professionals contribute to the medicalization of unemployment, as the male unemployed have a higher chance of taking antidepressants, regardless of their mental health and whether they have a higher likelihood of contacting a medical professional.

I ponder why less evidence is found for the medicalization of unemployment via primary care than via specialist care, as in most European countries, the former is more accessible than the latter. The principle of "equal treatment for equal need" prevails in primary care, and in some countries even a "pro-poor discrimination" predominates (van Doorslaer & Jones, 2004). The structural barriers–financial resources (van Doorslaer & Jones, 2004; van Doorslaer et al., 2004), gatekeeping system,[47] proximity, and mobility – and social-cognitive thresholds – information, stigma – are found to be higher for specialist care (WHO, 2005, 2011), and in particular among vulnerable groups such as the unemployed. Therefore, professional help for mild mental health complaints is probably evident more in primary care than specialized care. For a possible explanation of the fact that more evidence is found for the medicalization of unemployment via psychiatrist consultations, I refer to the work of Virtanen (1993). He argues that there can also be a type of medicalization of the employed, because the employed need a certificate of sickness to stay away from work, whereas the unemployed do not. This medicalization effect of the employed could mask the medicalization of the unemployed, because I compare the mental health care use of the unemployed with that of the employed. It is likely that the employed find it easier to go to a GP to obtain a sickness certificate for (mental) health complaints than to contact a psychiatrist.

The requirement for sickness certification can also be linked to the issue of hidden unemployment, through people relying on disability or sickness benefits instead of unemployment benefits (Beatty & Fothergill, 2005; Koning & Van Vuuren, 2006). In addition, the indicator of the need for care – measured by depression and anxiety-related complaints – possibly does not capture the entire complexity and degree of severity of mental health problems, which may be more important in specialist care. Nevertheless, with regard to mental health problems, there is no reason to expect that this will be more the case among the unemployed than the employed.

[47] In a gatekeeping system, a general practitioner is usually responsible for providing non-specialist care and managing referrals, as appropriate, for specialist services [http://medical-dictionary.thefreedictionary.com].

I also considered other explanations beyond the medicalization explanation. However, these seem to be less likely. Derived from economic models, the time-pressure argument is sometimes used to explain higher health care use among the unemployed than the employed, regardless of their actual health status. Being unemployed leaves a person with more disposable time, which may enable them to seek healthcare if they perceive a need for care (Ahs et al., 2012), whereas time constraints can hinder the employed from seeking care when symptoms flare up (Verbrugge & Ascione, 1987). However, this cannot explain higher medication use by the unemployed, because medication can be considered more as a quick fix for problems, in order to keep functioning, notwithstanding bad health (Christiaens & Bracke, 2013). This explanation is also inadequate with regard to the employed with job insecurity, because no more disposable time is available to them than it is for the employed without job insecurity. An alternative explanation could be that the unemployed seek care because they want a medical diagnosis in order to obtain disability benefits instead of unemployment benefits, as the former are more stable over time and often more generous. However, in my work the inactive because of disability or sickness are distinguished from the unemployed, and the results do not make this explanation particularly plausible. It can also be seen as a consequence of misdirected health-seeking behavior (Dooley & Catalano, 1984), resulting from psychological impairment. The unemployed adopt sick role behavior and seek care, because they want to explain their situation in order to overcome unemployment stigma. Nevertheless, the latter explanation can be captured by the medicalization perspective, as the unemployed use mental health care to justify their condition, which is also a hidden way to cope with feelings of personal failure.

Medicalization of unemployment and job insecurity can be linked to a concept from literature concerning medicalization: "stratified (bio)medicalization" (Clarke et al., 2003). This term highlights the unevenness and instabilities of the medicalization processes, reminding us that medicalization is not monolithic and unidirectional, but heterogeneous (Conrad, 2005). It is mostly used in order to refer to the fact that medicine erects barriers to accessing medical institutions and resources. These target and affect particular individuals and segments of the population, such as women, the low educated, the poor, immigrants, ethnic minorities, etc. Not everybody can pay for medication, medical treatment, consultations with medical professionals, and innovative technologies (Clarke et al., 2003), and as a result, medicalization can be stratified. However, the concept can also be used to argue that some

groups are more vulnerable to medicalization than others, for example women. Women's bodies and health are more often subject to medicalization compared with men for a variety of biological, social, and psychological reasons (Riessman, 1983). For example, the medicalization of "natural" female processes such as childbirth (Christiaens & van Teijlingen, 2009), menstruation (Oinas, 1998), and menopause (Griffiths, 1999), but also breast augmentation and female Viagra. In my dissertation, another example of stratified medicalization appears to be revealed, specifically the observation that the unemployed and the employed with job insecurity, are more vulnerable to medicalization via mental health care and psychotropic drug use.

In sum, depending on the type of mental health care (general care versus specialist care), evidence is found for the need hypothesis and the medicalization hypothesis, but not for the unmet need hypothesis. With regard to primary health care use, indicated by GP consultations for mental health problems, the greatest evidence is found for the need-based hypothesis. The unemployed have worse mental health than the employed and this is translated into a correspondingly higher likelihood of contacting a GP. The results concerning specialist care, or psychiatrist consultations, and antidepressant use mainly support the medicalization hypothesis of unemployment and job insecurity; and this can be considered as a form of stratified medicalization.

Societal level

Recognizing the autonomy and agency of patients to a greater degree, instead of considering them as passive victims of the power of medical professionals, has been mostly evaluated as a positive evolution in the health care sector (Devisch & Vanheule, 2015). However, the shift toward greater autonomy among patients can lead to over-emphasizing individual responsibility for health (Devisch & Vanheule, 2015). Debates on the implementation of the "Fat Tax" (Knack.be, 2015) and stopping the reimbursement of therapies for lung diseases among smokers (De Redactie.be, 2016) are current examples. This individualization of responsibility legitimates the denial of the complex structural issues that underpin the political economy of health (Cohn, 2014). It insidiously supports the individualization of structural problems such as poverty and unemployment. Considering unemployment as personal failure

facilitates the transformation of social problems into medical problems, which require individual medical treatment.

Based on this thinking, I hypothesized that the more unemployment is considered by society (and the unemployed themselves) as a personal failure – and therefore the responsibilization of unemployment is individualized – the more it will be medicalized. The opposite also applies: The more unemployment is perceived as a structural problem and the state is considered to be responsible for this social issue, the less the extent to which unemployment will be medicalized. By applying the social norm theory, first, in the traditional way – by using unemployment rates as a proxy for adherence to the social norm of unemployment (Clark et al., 2010) – and second, in an alternative way – by distinguishing between the displaced unemployed and non-displaced employed – I tried to test this theoretical supposition. The social norm theory claims, in short, that if unemployment is considered a structural problem – and the state is equally responsible – stigmatization and negative attitudes (such as the unemployed are lazy, do not want a job, do not deserve benefits, etc.) will be lower, and the well-being of the unemployed will be less negatively affected. I tested this social norm effect in Study 2, but it is also referred to in some of the other studies.

Less evidence is found for the traditional social norm hypothesis representing the degree of adherence to the social norm of unemployment (Clark et al., 2010; Clark, 2003) (Study 2). As hypothesized – and only with regard to GP consultations by men – the results show that being unemployed in a region with low unemployment, triggers unemployed men into having more contact with a GP compared with being unemployed in a region with high unemployment, irrespective of mental and general health status (Study 2).

With regard to mental health, no evidence is found for the hypothesis that the negative relation between unemployment and mental health will be weaker in regions and nations with a higher level of unemployment than in regions with a lower unemployment rate (Hypothesis 2.1). A possible explanation is provided by the labor-market approach, because the unemployment rate is also an important parameter of the economic climate and prevailing labor-market conditions (Oesch & Lipps, 2013). In a context characterized by a high unemployment rate, the duration of unemployment may be longer and the prospects of finding

a new job very poor, especially during a recession. Therefore, the contrasting effects of a high unemployment rate on the relation between unemployment and mental health could cancel each other out.

This labor-market explanation seems very likely for two reasons. First, the employed are found to be more depressed in regions and countries with high unemployment rates (Study 3 and Study 4). This could be explained by higher perceived job insecurity (Esser & Olsen, 2011; Dixon et al., 2013), greater workload in the shrinking sectors, and/or fewer alternative job options for the employed (Benach, et al., 2014, Clark et al., 2010, Buffel et al., 2015c). Second, and perhaps the most convincing argument, I found that the difference between unemployed men actively looking for a job and those not looking (discouraged or passive unemployed) becomes smaller, because men actively seeking work are more depressed in countries with an increase in unemployment (less chance of finding new work), whereas the discouraged workers are less depressed (Hypothesis 3.2.b) (Study 3). Among the passive unemployed, the labor-market approach is somewhat irrelevant, as they are no longer looking for a job. As a result, the social norm effect for this subgroup of the unemployed will not be neutralized by the negative effect of a higher unemployment rate – as an indicator of a scarce labor market – whereas this will be the case among the "official" unemployed, who are supposed to be actively looking for work (as is the case in Study 1 and Study 2) (Hypothesis 3.2.a).

With regard to the alternative way of relying on the social norm theory, more support is found for the displaced worker approach, but only among men (Hypothesis 2.2). The negative mental health effects of unemployment, in terms of depression and problem drinking, are less severe if unemployment is the result of a workplace closure (displaced unemployment). Male displaced workers suffer less as a result of their unemployment status than the other unemployed, possibly because of shared experiences among colleagues and less stigmatization. They more readily attribute their labor-market situation to structural factors, which makes them feel less responsible and hence reduces their self-esteem and mental health status to a lesser extent. The male displaced unemployed also use fewer antidepressants and anxiolytics than their non-displaced unemployed counterparts. This is mainly related to their better mental health. Nevertheless, the non-displaced unemployed still have higher medication

use than expected based on their actual mental health status. Relying on the social norm theory, this can be seen as an indication that non-displaced unemployed men feel more stigmatized and make internal attributions for their unemployment. They perceive their unemployment status as a personal failure, which may trigger medication use as an individualized coping strategy.

In sum, based on the traditional approach of testing the social norm theory, as hypothesized, unemployed men contact a GP more often in regions with a high level of unemployment. With regard to the mental health of the unemployed compared with the employed, the regional unemployment rate seems a more relevant indicator of labor-market conditions than the social norm of unemployment. The alternative application, however – comparing displaced and non-displaced unemployed – is more successful. Non-displaced unemployed men have worse mental health, a greater likelihood of being a heavy drinker, and higher medication use – irrespective of their mental health – than displaced unemployed men. Based on these findings, I can conclude that if the social norm of unemployment is high, assuming that unemployment is perceived more as a structural problem than a personal failure – measured by a high regional unemployment rate or non-displaced unemployed versus displaced unemployed – the medicalization of unemployment by men is more likely, assessed respectively by contacting a GP and using medication for anxiety and depression.

Macroeconomic context and changes

The impact of the economic crisis on depression

Before I examined whether the relation between employment status and mental health care use is contingent on the economic climate (in Study 4), I tried to get a better understanding of the impact of the European economic crisis on the mental health of the working-age population, addressing both the inactive (unemployed and non-employed) and the active (employed). In Study 3, I assessed the crisis effect by increases in rates of unemployment, while also controlling for countries' pre-crisis economic conditions.

In line with single-country studies – in Greece (Economou et al., 2013; Madianos et al., 2011), Italy (De Vogli et al., 2014), Spain (Cordoba-Dona et al., 2014; Fernandez-Rivas & Gonzalez-Torres, 2013; Gili et al., 2012; Moya, Buffel, Yanez, & Bracke, 2015; Roca et al.,

2013), and the UK (Barr et al., 2012; Katikireddi et al., 2012) – I established that there are increases in the levels of depression in countries strongly affected by the economic crisis (measured by an increase in unemployment rate). However, there does not seem to be something like a general crisis effect on mental health for the whole European working-age population.

The observed crisis effect on depressive symptoms is also more than just a reflection of an increase in risk factors for depression, such as unemployment and employment with non-standard job conditions (Hypothesis 3.1). The exceptions are the self-employed and women working part-time, for whom there is no positive relation with depressive symptoms The crisis effect is also more pronounced among men and people between 35 and 49 years of age. The changing composition of the working-age population is important, but the relation between some risk factors and depression are also altered by an increase in the unemployment rate. Part-time work and subcategories of both the unemployed and the non-employed are differently related to depression, depending on the strength of the economic crisis (Hypothesis 3.3). Men and women working marginal part-time are more likely to be depressed than in countries where there is no increase in unemployment. This can possibly be explained by the fact that this work is to some extent forced on individuals, as the only way to remain employed in a shrinking labor market, or in particular among women, they may be forced into the labor market as part-time workers by family economic needs (De Moortel, Vandenheede, & Vanroelen, 2014) or because of a partner's job insecurity. The latter is also termed the additional worker effect.

The relation between macroeconomic conditions and health care use

In the fourth empirical study, I examined whether the macroeconomic context and changes to it are related to mental health care use, via the impact on mental health or more directly, and irrespective of mental health. The results mainly support the direct mechanisms: The macroeconomic context and changes therein, are related to mental health care use, regardless of whether there is an increase or decrease in mental health problems (Hypothesis 4.3). I found that the unemployment rate, and changes in both the unemployment rate and the real GDP growth rate, are associated with men's care use, regardless of their mental health, whereas this does not hold for women. In countries with a high increase in unemployment,

contacting a GP is more likely for both employed and unemployed men, irrespective of actual mental health status. This suggests that the medicalization process is stronger in countries that were hardest hit by the crisis in terms of unemployment rates. Despite the fact that in times of economic contraction unemployment and job insecurity should be seen as structural problems, unemployment is also a more desperate situation that is possibly still regarded treated first and foremost as a personal problem.

Even among employed men, a small increase in the number of GP consultations is found, which might be explained by increased job insecurity (Eurofound, 2013). Study 1 indeed provides supporting evidence for the medicalization of job insecurity among men via GP consultations. In addition, in countries with a high mean unemployment rate, employed men are more likely to contact a GP for mental health problems. As this relation applies only to employees, it also supports the uncovering hypothesis and/or the preventive use of mental health facilities (Catalano et al., 1985; Dooley & Catalano, 1984) (Hypothesis 4.4.b). In an overstaffed labor market with an oversupply of potential employees, distress will be less tolerated and more readily labeled as deviating from the norm, which is assumed to lead to increased mental health care use, regardless of whether the behavior is new or had previously been treated (Dooley & Catalano, 1984). Further, the fear of job loss may trigger the employed to treat pre-symptoms of distress by preventively contacting a GP for emotional or psychosocial problems.

On the other hand, with regard to men's psychiatrist consultations it is shown that in countries with a decline in the GDP growth rate, the employed are less likely to contact a psychiatrist, regardless of their mental health. This result, in combination with the increase in GP consultations, appears to be an indication of the shift hypothesis. A more reliable explanation, which could explain why this finding only applies to working people, may be that the employed may avoid specialized care use – as it is more stigmatizing to contact a psychiatrist than a GP – for fear of being labeled as sick, acquiring a treatment stigma (de Belvis et al., 2012), and consequently losing their job (Gene-Badia et al., 2012).

Indirect crisis effects via policy reforms

Although macroeconomic conditions appear to be directly associated with mental health (Study 3) and professional care seeking by men (Study 4), I ponder whether they also have indirect consequences for well-being and mental health care use through their effect on public policies (Cooper, 2011). Several countries have responded to the crisis by implementing austerity policies – or were forced to by the IMF – including cuts to public expenditure and stricter entitlement criteria for benefits. Other recent studies (De Vogli 2013; Kondilis et al. 2013; Kondilis et al. 2012; McKee et al. 2012) have already warned of the effects of austerity on health outcomes. Study 3 also shows that disabled men are more depressed in countries strongly affected by the crisis. This finding can possibly be ascribed to reduced disability benefits and stricter criteria for entitlements (Blomqvist, 2014), which could strengthen the health selection effect on the non-employed (Hypothesis 3.4).

The results of Study 2 also reveal that men and women who retire early are more depressed in regions where unemployment is higher in the aftermath of the economic crisis (2010–2012). This group of early retirees is probably more vulnerable to the recession, as health selection effects may be operating to a greater extent. The older and often less-productive employees are more often perceived as too costly and are therefore pushed out of the labor market into retirement. They also might not be eligible for disability benefits, possibly because rules about accessing social security have become stricter as a response to the crisis (Blomqvist, 2014) and in order to overcome a form of hidden unemployment via disability benefits. In the last empirical study (Study 5), I did try to take into account any effect of austerity measures, by estimating the impact of cutbacks in general government expenditure (Antonakakis & Collins, 2014, 2015). Taking the individual mental health status and the average level of government expenditure into account, I observed that the likelihood of contacting a GP for emotional or psychosocial problems is lower in countries with a decrease in government expenditure than in countries without a decrease, also after taking mental health into account.

In summary, not only is individual employment status important for people's mental health and care use, but the dynamic macroeconomic conditions, and especially economic contraction, also play a role. There is an increase in depression in countries strongly affected by the crisis, and especially among men. This crisis effect is not restricted to the unemployed,

as for example the relation between part-time work and depression is also stronger. The macroeconomic context and changes therein are also directly related to men's mental health care use. Moreover, my findings emphasize the importance of making the distinction between primary and specialized medical care use, as the impact of macroeconomic conditions is dependent on the type of care. In shrinking economies, GP consultations increase among unemployed and employed men, but by contrast, the likelihood of contacting a psychiatrist by employed men decreases. Lastly, important indications of austerity effects on mental health and GP consultations are found.

Institutional level

In the last empirical study (Study 5), the impact of institutional arrangements on the relation between unemployment and mental health care use is addressed. I tried to answer the following questions: Does the relation between unemployment and mental health care use, controlling for reported mental health status, vary across European countries? Are these differences patterned by a combination of unemployment and health care generosity? More generally, how is the level of unemployment generosity and health care generosity linked to the relation between employment status and mental health care use, when other important institutional factors (public disability spending, changes in government spending, economic capacity, and labor-market conditions) are taken into account?

By following the institutional approach to welfare state effects on health (Beckfield et al. 2015; Bergqvist, Yngwe, & Lundberg 2013), unemployment and health care generosity can be addressed as separate welfare domains (Kasza, 2002; Bambra, 2005a), which is very important for my research aims. In several countries, policy is generous in one domain but not the other. For example, the UK is a good example of a country with a low level of unemployment generosity combined with a high level of health care generosity.

Unemployment is not only consistently related to worse general health (Bambra and Eikemo 2009) and mental health. I also found that in several European countries, unemployment is positively related to mental health care use, at least to some degree, and also when taking mental health status into account. However, the medicalization of unemployment – measured

as the remaining association between unemployment and mental health care utilization after controlling for reported mental health status – varies substantially across national contexts and this variation is partly patterned by a country's level of unemployment generosity, and especially health care generosity. Based on the theoretical framework, the combination of a high level of unemployment generosity and a high level of health care generosity was hypothesized to create the most favorable institutional conditions for medicalizing unemployment (Hypothesis 5.3). In line with this hypothesis, I indeed find that in the UK, Slovenia, Finland, and Estonia, mental health care utilization among the unemployed is significantly higher than expected based on their mental health, at least for one type of medical care (GP or psychiatrist consultations).

Surprisingly, with regard to the role of unemployment generosity, the results contradict my expectations that a low level of unemployment generosity would trigger the medicalization of unemployment. The relation between unemployment and GP consultations for mental health problems is stronger in countries with greater unemployment generosity. However, this finding is only true for countries with a relatively low unemployment rate, and a significant negative relation between unemployment level and unemployment generosity is observed. As also observed in the other studies, more evidence is found for the need hypothesis regarding GP consultations. Evidence for the medicalization of unemployed men via GP consultations is only observed for some specific age groups and under certain macroeconomic conditions, such as in regions with low unemployment. Therefore, in a context with probably no social norm of unemployment and a greater likelihood of (health) selection effects, higher levels of unemployment generosity may also strengthen the medicalization of unemployment via GP consultations.

In line with the second hypothesis (Hypothesis 5.2), the results of the multilevel analyses highlight health care generosity as an important institutional factor for unemployment medicalization via medical professionals. In countries with high health care generosity, the relations between unemployment and contacting medical professionals (GP and psychiatrist), irrespective of mental health, are stronger than in countries with low generosity. The structural thresholds for contacting a medical professional are lower and the access to and availability of medical resources is independent of (or minimally dependent on) an

individual's position in the labor market and/or their economic capital. By contrast, in countries with low health care generosity, private (insurance) expenditure, private service provision (relative to public expenditure and provision), and higher out-of-pocket payments increase social inequality in health care access, especially by harming the most vulnerable (Bambra, Garthwaite, & Hunter 2014), such as the unemployed.

In summary, high health care generosity seems to be a facilitating factor for the medicalization of unemployment, while low health care generosity attenuates the relation between unemployment and mental health care use, regardless of mental health. However, the latter does not mean that it makes the medicalization of unemployment impossible. In Germany and Slovakia, for example – countries with a relatively low level of health care generosity – there is still convincing evidence for the medicalization of unemployment. Contrary to my expectations, a low level of unemployment generosity also triggers the medicalization of unemployment via GP consultations, but only in countries characterized by low unemployment levels. To conclude, the most evidence for the medicalization of unemployment is found among countries with the combination of a high level of unemployment generosity and a high level of health care generosity.

Gender differences

I complete the summary of the most important findings by highlighting some gender differences. First, I hypothesized in the first study that women would be more vulnerable to the medicalization of unemployment. Women are generally perceived as more likely to have problematic experiences defined and treated medically (Riessman, 1983). They more readily label problems and discomfort as health related and are more likely to accept mental health services (Catalano et al., 1985). Women tend to be the primary carers in the family (Bracke et al., 2008), and as result have a greater involvement in health matters (O'Brien et al., 2005). The use of medical treatment may be a more common coping mechanism among women, because society gives women more freedom to express feelings, perceive emotional problems, be tired, and seek medical care (Shofield et al., 2000), all of which leads me to expect a higher likelihood of medicalization for women. Women also use mental health care more than men, irrespective of their mental health (Buffel, Van de Velde, & Bracke, 2014; Buffel, et al. 2014;

Gouwy, 2008), and are more familiar with health issues and mental health care services, due to their traditional care-giving role and socialization process (Chodorow, 2002; Moller-Leimkuhler, 2002). Previous work has also revealed a prescription bias among women; women with similar mental health complaints to men, more frequently use psychotropic drugs (Hohmann, 1989; Linden et al., 1999; Van der Waals et al., 1993).

Most of my results, however, do not confirm the expectation that women are more vulnerable to the medicalization of unemployment and job insecurity. Although the relation between unemployment and mental health problems (depression, problematic alcohol use) has been found to be slightly stronger among men, men are nevertheless not straightforwardly more vulnerable to the medicalization of unemployment and job insecurity. One possible explanation for the fact that I did not find more evidence for medicalization among women could lie in the specific topic – unemployment and precarious work – studied in terms of medicalization. Although there has been a shift from the male breadwinner model toward dual-earner families in several European countries, a man's life is often still more centered around paid work, whereas women are often more oriented toward the family. Consequently, men may feel more dependent on employment, and as a result will suffer more from becoming unemployed, while women may be more vulnerable to issues concerning the family (Christiaens & Bracke, 2014).

Nevertheless, I have observed some important gender differences concerning the type of mental health service that is used to medicalize job insecurity and unemployment (GP, psychiatrist, or psychotropic medication). For example, with regard to job insecurity, women with insecure jobs have increased antidepressant consumption, whereas their male counterparts have a higher likelihood of contacting a GP, regardless of their actual mental health status (Study 1). In addition, among the unemployed, the higher likelihood of being a heavy episodic drinker can be interpreted as a form of self-medicalization, whereby alcohol is used as a coping mechanism to handle stress and anxiety related to unemployment (Riska & Ettorre, 1999).

In the first study, for both men and women there is evidence for the medicalization of unemployment via psychiatrist's consultations and antidepressant use. Otherwise, and already

mentioned above, after controlling for mental health and mental health care use, unemployed men are still more likely to use antidepressants than employed men, whereas this is not the case for employed women. In other words, unemployed men who contact a medical professional for emotional or psychosocial problems, have a higher likelihood of taking antidepressants and also contacting health care providers compared with employed men with a similar mental health status. This can be seen as an indication of a prescription bias among unemployed versus employed men, as antidepressants are only available on prescription from a medical professional. It could be that medical professionals consider male unemployment more as an individual issue resulting from personal problems, and therefore more often prescribe antidepressants. Additionally, it has previously been suggested that the unemployed are more likely than the employed to be prescribed medication for symptoms of anxiety and depression, rather than being referred to therapy (Comino, Harris, Silove, Manicavasagar, & Harris, 2000) or offered participation in self-help groups (Ahs & Westerling, 2006).

Another notable gender difference is that it is mainly only the relation between male unemployment and mental health care use that is moderated by the macroeconomic conditions and changes therein. In addition, the social norm effect via regional unemployment rate and by distinguishing between the displaced and the non-displaced unemployed is only observed on men's mental health and mental health care use. A possible explanation for the latter can be found in literature concerning depression. A personal sense of control is very important for women's emotional well-being (Ross & Mirowsky, 2006). Displaced unemployment, however, has a clear external cause, which also means that the personal sense of control will be perceived as lower. It is possible that this lower sense of control will adversely affect women's mental health in particular, and therefore neutralize the expected difference in depression between displaced and non-displaced unemployed women, whereas this will not be the case for men.

With regard to macroeconomic conditions, I primarily refer to the impact of the economic crisis on mental health outcomes. The mental health and mental health care use of middle-aged men are most vulnerable to the economic crisis. As a result, the gender gap in depression, with women having more depressive feelings (Van de Velde et al., 2010) than men, decreases in countries hardest hit by the crisis. Some indications have already been provided by other studies, with the finding that men are at increased risk of depression and

suicide during times of economic adversity (Artazcoz et al., 2004; Barr et al., 2012; Dunlop & Mletzko, 2011; Uutela, 2010; Wahlbeck & McDaid, 2012). An important contribution of the current work is the finding that the use of mental health care by men is affected, together with the actual mental health of employed men. A valuable explanation for the decrease in psychiatric consultations among men in countries strongly affect by the crisis, could be that employed men may avoid specialized care use for fear of being labeled as sick, consequently acquiring treatment stigma (de Belvis et al., 2012), and losing their job (Gene-Badia et al., 2012). Previous research has repeatedly shown that men are more resistant to seeking professional help from a psychiatrist, and perhaps especially more so in economically difficult times, characterized by less tolerance toward people with mental health problems (Evans-Lacko et al., 2013). This lack of care could also contribute detrimentally to their mental health status, and in the worst cases to suicide. Furthermore, the economic crisis may also have indirect consequences for mental health outcomes through its effect on public policies (de Belvis et al., 2012), and it is argued in some literature that women are more vulnerable to these indirect effects via austerity measures (Bettio, 2012; Karamessini & Rubery, 2013).

In conclusion, the medicalization of unemployment and job insecurity is not, as I had expected, stronger among women than men. Unemployed men are more likely to be prescribed psychotropic medication and to be heavy drinkers, whereas this is not the case among women. Men's mental health and care use are also more vulnerable to the negative impact of the economic crisis, macroeconomic conditions, and prevailing social norms. Despite the shift to dual-earner families, men suffer more from becoming unemployed, and in some circumstances are more vulnerable to (self-)medicalizing it, while women are more prone to family-work related problems. The latter are also found to be more medicalized by women (Christiaens & Bracke, 2014).

2. Limitations

Unavoidably, there are several limitations I could not deal with in the empirical studies. In the next section, I touch on the most prominent ones, and accordingly discuss some suggestions for how these can be tackled in future studies.

Causation, selection, and temporal ordering

The first and important limitation concerns the design of the datasets I used. The empirical chapters of this dissertation are based on cross-sectional surveys (with the exception of the SHARE, although only one wave of this could be used for my study). This cross-sectional nature does not allow firm conclusions to be made regarding the direction of the relation between employment status and mental health. There are also some problems with regard to temporal order. The main independent variable – employment status – indicates the situation of the respondents at the time of the survey interview. However, the items concerning professional care seeking refer to the twelve months preceding the interview, and the period of reference for experiencing depressive feelings is the preceding four weeks in the SHARE and the Eurobarometer, and the previous week in the ESS. This is normal for most cross-sectional studies (Bracke et al., 2010; Gouwy, 2008), but it contributes to blurring the time ordering of the main variables, and the possibility of reversed causality biasing the results cannot be ruled out. At the first glance, one might think that selection effects are less important for medicalization. However, certain personal characteristics, such as low self-esteem and feelings of helplessness – which make individuals more vulnerable to both unemployment and poor health (Schmitz, 2011; Schroder, 2013) – may also involve the possibility that if these lead to unemployment and poor health, unemployment is also perceived more as a personal failure and is more susceptible to medicalization.

I attempted to take into account the possible selection bias and problems of endogeneity in various ways. First, in line with previous cross-sectional studies, I sought to reduce the possible health selection effects, and also composition effects, by controlling for relevant confounding factors, such as education, income, age, migratory status, type of community, and marital status. The low educated (Nickell, 1979) and immigrants (Koopmans, Uiters, Deville, & Foets, 2013) have, for example, a higher risk of being unemployed. Accordingly, by controlling appropriately, part of the selection effects are taken into account. In the three European surveys, I also observed that the group of the unemployed encompasses proportionally more low educated, divorced, singles, and first generation migrants, compared with the group of the employed. If these parameters are not taken into account, composition effects will be at work, because low education (von dem Knesebeck, Pattyn, & Bracke, 2011), being divorced or single (Buffel; Colman, 2014), and having an immigrant status (Missinne &

Bracke, 2012) are also related to worse mental health. The models also include countries' unemployment rates. In this way, I controlled for potential between-country differences in selection bias related to between-country variation in the proportions of the unemployed. In addition, I tested interaction effects between the individual employment status and the national proportion of the unemployed. I did this because, in line with other research (Clark et al., 2010), I could expect that in countries with low unemployment, unemployment would be less randomly distributed, and as a result would be more frequently considered a personal characteristic or a direct or indirect consequence of health selection (Mackenbach, 2012a). However, these interactions were in the most cases not significant: Being unemployed is not notably differently related to depression according to the national level of unemployment.

Second, by making the distinction between the unemployed and those non-employed due to illness or disability, I could partially take into account the possible reverse causality in unemployment (Beland et al., 2002). However, not all selection bias can be corrected in this way. Even if initial job loss is not caused by health problems, selection bias can occur because unemployment may have a detrimental impact on health (Paul & Moser, 2009), and subsequently the unhealthy unemployed are less likely to find a new job than the more healthy unemployed (Stewart, 2001). Additionally, we have to be aware of the "hidden unemployed" – the unemployed who rely on disability benefits instead of unemployment benefits – who are in this way also excluded from the unemployed category.

Third, a displaced worker approach is used in Study 2. This is a commonly recognized strategy to partially tackle the selection-causation issue (Schroder, 2013; Winkelmann 2014). Displaced workers are unemployed because of workplace closure and are therefore characterized by a structural cause for job loss (Fallick, 1996). This type of unemployment can be considered as exogenous to the individual, because it cannot be attributed to the personal characteristics and capacities of the unemployed. However, there are some minor concerns related to the displaced worker approach. One concern is the finding that establishments that close down tend to be the ones that had opened recently (Persson, 2004). It is possible that workers at new establishments have characteristics or behaviors associated with a higher risk of mental health problems, as new businesses may, for example, have less-developed hiring and screening processes (Eliason & Storrie, 2009a). Additionally, in some

cases the unemployment of displaced workers may not be entirely exogenous. For example, it could be that a group of employees, such as blue-collar workers, might have a higher likelihood of becoming unemployed due to a workplace closure, as they work in sectors where firms can be more easily closed or bankrupted (Schmitz, 2011). However, since this study concerns a period of recession in Europe, financial, retail, and service sectors are also affected (Karamessini & Rubery, 2014), meaning that white-collar workers are included in the category of displaced workers. Another drawback is that the number of the exogenous unemployed remains relatively small compared with the other unemployed and the employed, however, I do find some significant effects, even with the smaller number of cases. In addition, no further categorization between types of unemployment was possible, as the number of cases were too small for further analyses. Therefore, I opted for the most adequate distinction – displaced workers versus other unemployed – to test the medicalization and social norm hypothesis, and because the displaced workers are the group among the unemployed that increased most during the crisis

In addition, I was not able to take into account the duration of unemployment and whether it was the first time or not, although some research has shown the importance of these factors in relation to mental health and care use (Virtanen et al., 2006). Accordingly, I was not able to test for potential habituation effects, as has been done in previous work (Clark et al., 2008; Oesch & Lipps, 2013; Winkelmann, 2014). However, the existing studies show that these effects are relatively weak.

I believe that another very good way to manage the possible selection effects is by working with panel data, with sufficient sequential interviews with a short duration between them. Unfortunately, this type of data was not available for my research topic "mental health care use of the unemployed cross nationally". I therefore tried to deal with selection effects to the best of my capacities using the available options. Moreover, despite these limitations, meta-analyses have shown that mental health selection effects on unemployment and on subsequent job search are weak (McKee-Ryan et al., 2005; Paul, 2006, Paul & Moser, 2009.

Measurements

The information about mental health measured by the EURO-D, MHI-5, and CES-D 8 scales does not fully capture the complexity of mental health problems, as they only take into account depression and anxiety-related complaints and symptoms. This is a relatively limited operationalization of mental health status and need, a description strictly in terms of "mental illness" and not in terms of "inability to function". In addition, the expression of stress and mental health problems differs between men and women, and accordingly it would be better to also include indicators of impulsive and addictive behavior, such as alcohol abuse (Simon, 2002; Piccinelli & Wilkinson, 2000; Vesga-Lopez et al., 2008). Similar to mood and anxiety disorders, this type of behavior is also related to unemployment (Bartley, 1994) and has been found to be negatively associated with health care use (Buffel; Colman, 2014; Rhodes et al., 2002). I was only able to take alcohol consumption into account in Study 2, using the SHARE data. I did indeed find that heavy episodic drinking is positively related to male unemployment, while negatively associated with mental health care use.

Self-reported information regarding mental health problems does not need to be considered as a limitation of my work, as I am especially interested in how the employed and unemployed perceive them and how they evaluate their mental health status, instead of the opinion of medical experts. Moreover, the CES-D 8, EURO-D, and MHI-5 are reliable scales with which to investigate cross-national differences in mental health and the relation with unemployment, as the measurements have been tested for validity and comparability, and used in more than a dozen European countries (Copeland et al., 1999, Lehto-Järnstedt, 2003;Missinne et al., 2014; Van de Velde et al., 2010). Finding similar results across the three datasets is also a strong added value of this dissertation.

Survey data is a good way to identify the care used by a representative population for a given problem, in addition to a series of important socioeconomic and demographic indicators, and to compare care use across countries. Nevertheless, it also involves some limitations. Individuals with more severe mental health conditions, such as those in institutional or group home settings, are not included in the dataset. In addition, there is also an issue of under-reporting, which has been extensively documented in literature (Ritter, et al., 2001). For example, a study by Sevilla-Dedieu and colleagues (2011) reveals that survey questions on

the use of services for mental problems can lead to an underestimation when respondents are not reminded about different mental disorders or any of their symptoms. However, these researchers did not establish gender differences in the bias. In addition, in my empirical studies, respondents in the Eurobarometer and SHARE were only asked about seeking mental health care after having completed a mental health scale (MHI-5 and EURO-D). This may have increased their awareness of the range of mental health issues, and possibly reduced under-reporting.

Another possible limitation concerning self-reported mental health care and medication use is that the differential use of health care by women and men may be a result of reporting bias. However, systematic differences between men and women in reporting appear to be small. Gender differences in care use are consistent across self-reported and record-based studies at an aggregated level. In addition, there is little evidence to indicate that women are more likely than men to report their use of mental health services at the individual level (Golding, Gongla, & Brownell, 1988).

For employment status and mental health care use, register data can be useful, as unemployment and contacting medical professional are sensitive topics, and could be under-reported. Specifically for Belgium, combining statistics from the Government Department for Labor (RVA) with information from the Government Department for Sickness and Disability Insurances (RIZIV) could be very useful for further analyses or additional checks of the validity of survey data. However, register data has its disadvantages. Such information can be used for single-country studies, but for cross-national research, it is very unrealistic. Each country has its own system and institutions for data collection, and there may be different privacy rules about the use of this information. In addition, in several countries only the unemployed relying on unemployment benefits are included in the numbers, and for example with regard to psychotropic medication, there is no information about actual use.

A related limitation is that only medical care use for mental health problems is addressed (with the exception of the second study on the SHARE, because there is no information available for the reason why GPs are contacted). Although I consciously chose to examine health care and medication use due to emotional or mental health problems – as the

consequences of unemployment, precarious work, and the economic crisis are especially expressed in mental health problems – this also has a limitation. Mental health problems can have physical complaints as symptoms, and might therefore be considered by the respondents as physical health problems. As a result of this misperception, the number of contacts with a medical professional due to mental health problems could be underestimated. This will especially be the case for contacts with general practitioners, although less so for psychiatrist consultations and antidepressant use. In Study 2, in addition to mental health, general health status as an indicator of the need for care is also considered. The results are in line with the other studies, with regard to GP contacts for mental health problems.

Taking the financial situation into account

I was not able to take the financial situation of the respondents into account in the last two studies (using Eurobarometer 64.4 and 73.2), and in the first study only a very subjective indicator was available. Previous work has already shown the importance of income for health care use, especially for specialist care. With regard to primary care (or GP consultations), no income differences are observed after taking need into account, and if there are income differences, this will be a relatively pro-poor distribution (van Doorslaer & Jones, 2004; Vasiliadis et al., 2009). For specialist care such as psychiatrist consultations, in several European countries low income may function as a barrier to contacting a medical professional. As the unemployed do not have an income, and can only rely on unemployment benefits, they are more vulnerable to perceiving this as a structural barrier to contacting a specialist. This is a limitation of the study, but by including education level I have taken this partly into account. Further, it would possibly only lead to an underestimation of the medicalization of unemployment. In addition, Study 2 and Study 3 – including respectively wealth and income – show similar results regarding the relation between employment status and mental health, as well as health care use. The negative effect of unemployment on mental health is therefore not only because of the pecuniary cost of unemployment. Unemployment captures more than the loss of income, including several socio-psychological factors –which have been found in previous studies – such as a loss of status and self-esteem, social isolation, and the lack of time structure (Bartley et al., 2006; Jahoda, 1981), which in turn may lead to a deterioration of mental health. Future research, using path analyses to estimate the pecuniary

and non-pecuniary costs of unemployment as mediating factors between unemployment, mental health, and health care use, could help to clarify these intermediate links.

Social norm

I examined the relations between unemployment, mental health, and mental health care use at the societal level, by investigating the social norm effects of unemployment. Although this has been done in several studies (Clark et al., 2010; Clark, 2003; Oesch & Lipps, 2013; Stavrova et al., 2011) by using the regional unemployment rate as a proxy for adherence to the norm of unemployment (or as a proxy for the descriptive norm of unemployment), we can question whether this is may be too limited, as only a structural factor is used. I cannot observe directly the extent to which unemployed people share their experience with friends and family. Hence, even though the regional and/or national unemployment rate could be very high, the individual might be the only one in his or her social network to be unemployed. This approach also implicitly relies on the assumption that in regions or countries with a high unemployment rate, unemployment is seen more as a structural problem. Additionally, regions in terms of NUTS level 1 (and in some countries level 2, as NUTS level 1 overlaps with the country) and certainly countries, are still relatively large geographic units. It is possible that country-level and region-level indicators do not adequately capture what exists in people's life and work environment. Relying on local or community unemployment rates might be more appropriate. However, when working with different countries, it is very difficult to find comparable local unemployment rates for each country. Moreover, nowadays people are more mobile and social media transcends local boundaries.

Recently, researchers have highlighted the importance of a direct but also subjective measurement of the social norm, such as societal tolerance of being unemployed, or the degree of government responsibility (Stam, Bieben, Verbakel, & de Graaf, 2015). They have used individual information on items such as "Work is a duty toward society", "the unemployed are lazy", or "the fate of the unemployed is the responsibility of the government". By aggregating this information on a country or regional level, researchers have constructed a measurement of the social norm of work or unemployment. Unfortunately, this information is not available in the SHARE and Eurobarometer data. This type of information

is included in the ESS wave 4, but no information on depression or mental health care use is available there. Recent research (Stam et al., 2015) using a direct measurement of the social norm to work at the country level does not support a moderation effect between unemployment and well-being. It is possible that country-level indicators do not adequately capture what exists in people's life and work environment. Research directly measuring the work norm at the community (Lalive & Stutzer, 2004) or individual level (Winkelmann, 2014), confirms that the negative effect of unemployment on life satisfaction is higher in the group of unemployed relying on strong work norms. In future research, I recommend testing the social norm effect of unemployment on mental health and mental health care use via several measurements of the social norm, both direct (through items about attitudes toward the unemployed, and who is taken as responsible) and indirect (through unemployment rates at different geographical levels). It would also be very interesting to take several subgroups among the unemployed into account, such as the displaced and non-displaced, and the active and non-active, as the latter will be less vulnerable to labor-market conditions.

3. Suggestions for further empirical research and implications for medical sociological theory

First, I should highlight that I have studied only one part of the medicalization process of unemployment and in a specific way. I have quantified the medicalization of unemployment as comprising the remaining association between unemployment and mental health care use after controlling for reported mental health status. I do not claim that this is the only correct way; however, it has several advantages. It enables cross-national comparative research and the exploration of the impact of societal, macroeconomic, and institutional factors on the medicalization of unemployment. Despite these advantages, I recognize that this is a relatively conservative interpretation and way of measuring the medicalization of unemployment, because only medical care use beyond need is considered as an indicator of medicalization. I also examined only one particular part of the process of medicalization – by measuring it as mental health care use beyond need – and in one specific societal area, encompassing the use of medical care in the mental health field. Medicalization of unemployment could also be examined in other societal areas, such as at the conceptual level via discourse analysis in the media; whether unemployment is written or spoken about using

medical terms or whether concepts are used – such as personal failure or loss of motivation – that would imply individual responsibilization.

Another very important part of the medicalization of unemployment is hidden unemployment, referring to relying on disability benefits instead of unemployment benefits. Mental health complaints have become available pathways for access to relatively stable benefits (Koning & Van Vuuren, 2006). The most attractive benefit scheme in most European countries is disability insurance, rather than unemployment insurance, because benefits are mostly more generous, less stigmatizing, and do not involve the need to search actively for a job in order to retain entitlement (Beatty & Fothergill, 2015). A sufficient degree of ill health or disability, determined by a medical professional, usually a GP (Bambra & Smith, 2010), is required. In Western European countries in particular, the relatively generous social security arrangements have triggered substantial hidden unemployment. Linking the topic of hidden unemployment to medicalizing unemployment and making it empirically testable by a quantitative comparative method is, however, a very difficult challenge. Researchers have already argued that the distinction between unemployment and disability is blurred, especially because unemployment can cause disability, and as a result we face identification problems (Bratsberg, Fevang, & Roed, 2010; Koning & Van Vuuren, 2006). A possible option for future research is to study hidden unemployment by qualitative research along the lines of the work by Hansen and colleagues (2014) on the pathologization of poverty. Alternatively in a quantitative way, by combining policy reforms related to unemployment and disability benefits, with longitudinal statistics for unemployment, employment, disability and sickness, early retirement, and minimum income beneficiaries. In addition, I want to accentuate that the method for quantifying the medicalization of unemployment used in this research project, could also be applied to other social or structural problems that can be individualized, such as poverty, over-education, work stress, or work-family stress, which has already been done by Christiaens and Bracke (2014).

Second, in previous research and especially in social epidemiological studies, there is a lack of attention paid to asymptomatic and over-consumption of medical care, as the dominant focus is on under-consumption and unmet need. I do not want to claim that the latter is less important; on the contrary, I follow the idea that we have to start research from the agreement

that inequality in access to health services is unacceptable (Ahs & Westerling, 2006; Virtanen, Kivimaki, Vahtera, & Koskenvuo, 2006). We have to continue to strive for the principle of vertical equality: Offering equal access to health care according to need (Ahs & Westerling, 2006). However, the other side of the story, namely the medicalization process, also requires the attention of social epidemiologists, social economists, and especially medical sociologists. In this study, I have tried to measure medicalization based on mental health as an indication of the need for care. I am aware of the fact that self-reported mental health does not capture everything, and that this is certainly an issue for discussion. Nevertheless, by empirically testing the medicalization theory in a European population, and linking it to the dominant biomedical model, I have presented a more nuanced picture of medical care and antidepressant use related to unemployment, framed in society with its socioeconomic conditions and institutional arrangements.

Third, in the last study (Study 5) concerning the role of welfare policies, I use many elements from the institutional approach, for example combining several policy areas, not using a clustering of countries or a typology (such as in the regime approach), and paying attention to specific social services and institutional characteristics (replacement rate, duration, coverage, qualification criteria, etc.) instead of only expenditure measurements, which has been the traditional method in the expenditure approach (Bergqvist et al., 2013). However, as a result, I am also subject to the main disadvantage of the institutional approach: In order to construct relevant program features, the databases apply a number of assumptions regarding for example, age and the family situation of a standard worker, which could be problematic if there are important groups that fall outside the living situations captured by these type cases (Korpi, 2010). Furthermore, I only control for active labor-market programs, by using the level of expenditure, whereas there are many other types of activation policies and programs that could have different effects on the medicalization of unemployment. In addition, the measurement of unemployment and health care generosity could be more detailed, for example by using information specific to the mental health care sector, and paying attention to preventive care, sensibilization, and anti-stigma campaigns. Recent research has also highlighted the importance of trust in policies and the government.

To overcome the limitations of the three approaches – the regime approach, the expenditure approach, and the institutional approach – and in order to enable capturing the above-mentioned important policies, programs, and additional indicators of unemployment and health care generosity, fuzzy set ideal type analysis can be proposed for use in future research. This bridges qualitative (known as case oriented) and quantitative (referred to as variable oriented) research, and combines the strengths of both (Ragin & Pennings, 2005). A fine-grained continuous measurement has been carefully developed using substantive and theoretical knowledge relevant to set membership (Ciccia & Verloo, 2012). In fuzzy set analysis, countries are assigned to membership groups (sets) in accordance with particular characteristics of interest, and this allows the calculation of degrees of membership. Qualitative breakpoints and conditions can be defined based on theory and acknowledged best practice. In addition, many aspects and several policy domains can be considered simultaneously. Further, and unlike the regime approach, it does not permit compensation effects that can mask the reality (Ciccia & Verloo, 2012; Ragin & Pennings, 2005).

Fourth, the focus in this research project is on the unemployed compared with the employed. Throughout the empirical chapters of my dissertation, I have tried to address as far as possible the differences within the group of the unemployed, but based on unemployment-related characteristics. I have paid attention to the active and the passive unemployed (Study 2), and to the displaced and non-displaced unemployed (Study 3). Future research taking into account other unemployment and work history related characteristics would be a very interesting contribution to the field. This could include information about the duration of unemployment, whether or not a person became unemployed for the first time, whether they had already worked in the past, how satisfied they were with their previous work, etc. In addition, although my study confirms that the dichotomy based on employment status is still relevant in research about mental health and care use, it is also important to recognize differences within the group of the employed (Virtanen et al., 2006), particularly between those with and without job insecurity. In addition, the focus on medicalization related to precarious work needs to be highlighted, as this might not be limited to job insecurity. Unfortunately, I was not able to address non-standard job conditions – such as temporary work and involuntary part-time work – in terms of medicalization via mental health care use, as the ESS only includes information concerning mental health, not mental health care use.

Moreover, depending on social class and socioeconomic position, some individuals will be more vulnerable than others to unemployment and the impact of the macroeconomic context and changes to it, which may also have consequences for their mental health and medical care use. The higher-educated unemployed might react differently to unemployment, as they have other flexible resources they can use in order to cope with their situation (Link, Phelan, Miech, & Westin, 2008). On the one hand, they often have more financial security and a greater likelihood of finding a new job, resulting in less experience of distress due to job loss compared with the lower educated (Mandemakers & Monden, 2013). On the other hand, their previous job might have been more important to them, their dedication to work could be higher, and it might be that they are more critical when looking for new work and the selection procedures accordingly require more energy. Future research on the medicalization of unemployment therefore certainly requires the inclusion of interactions between unemployment and other factors, such as education level, migratory status, household wealth, and partner's employment status. In addition, it is important to study the role of the social stratification system of a country and to what degree social mobility is possible (Muntaner, Vanroelen, Christ, & Eaton, 2013), as well as how difficult it is for some groups to find a job because of labor-market discrimination (e.g. immigrants, the low educated, former juvenile delinquents, pregnant women, women with young children, and homosexuals (Baert, 2014, 2015a, 2015b; Baert & Cockx, 2013; Baert, Cockx, Gheyle, & Vandamme, 2013; Baert, Norga, & Van Hecke, 2015; Baert & Verhofstadt, 2015).

Lastly, I want to accentuate one particular strength of this research project, namely that some of my empirical studies use the unemployment level as well as changes to the unemployment rate over time (Study 3 and Study 4. In Study 5 the same combination is used but with government expenditure as an indicator of fiscal austerity). However, we should keep in mind that my empirical strategy only provides two or three "snapshots", as I only have information about two or three periods, which means that some intra-country nuances and/or differences between the periods will be lost.[48] Using a similar strategy on datasets capturing more consecutive years is recommended.

[48] In the first Appendix, the unemployment rate per year from 2004 to 2014 for each country (included in one of more of my studies) are presented in a graph.

4. Policy implications

The prime aim of this thesis concerns the development of insights into the mental health care use of the unemployed from a sociological point of view. However, by integrating the biomedical model and the medicalization perspective, my approach to the medicalization of unemployment forms the basis for some cautious reflections with regard to policy implications.

First, I believe the question arises of whether medicalization in general is something negative or positive. Although medicalization is a neutral concept, it mostly has a negative connotation. In fact, medicalization is initially a value-neutral process, but the outcomes negatively or positively affect individuals and public health, as well as the approach to and perception of problems (Parens, 2011). Medicalization can help people to obtain better treatment, which can improve their quality of life (for example pain medication). It diminishes thresholds to health care seeking. One hoped-for advantage of medicalization is the de-stigmatization of mental health problems, by considering and treating them in a similar way as physical disorders. However there is no consistent evidence for this being effective (Pattyn, Verhaeghe, Sercu, & Bracke, 2013). A disadvantage is that medicalization may also erect barriers for vulnerable groups, because innovative treatments and medication are often very expensive (Clarke et al., 2003)riziv. Medicalization can also be seen as a reflection of a culture that demands quick and easy solutions to (social) problems, which may take power away from individuals, and it signals a lack of other available solutions. Moreover, it may reframe and transform ideas of physical and emotional normality, stimulating the overuse of medication and medical treatment.

For sociologists – and also very relevant for my research topic of unemployment and job insecurity – one of the most troubling results of medicalization is that it encourages medical solutions, while ignoring or downplaying the social context of complicated problems (Illich, 1974, 1975a, 1975b). As a result, it depoliticizes problems and absolves employers and the government of their responsibilities. Problems that are not only personal, but are rooted in society – and its norms, structures and institutional arrangements – require a more structural solution. One actual and relevant example is the increasing number of people in mental health care suffering from burnout. Burnout is considered and treated as a medical problem, while

the social context stays in the background. Some examples of a more structural approach to this problem could be improving job conditions, reducing the number of working hours (Matharu, 2015), and in some areas implementing de-flexibilization policies, because flexibilization is often a euphemism for an increase in job insecurity (De Morgen, 2016). My research shows that job insecurity and unemployment are important risk factors for mental health problems, in addition to providing strong evidence for the medicalization of job insecurity and unemployment. I am aware that there will always be unemployment – as frictional unemployment[49] cannot be eliminated – and job insecurity, but we can at least try to reduce them, shorten the duration of unemployment, and prevent the negative mental health consequences and mental health care use beyond need – which can make it even more difficult to find new work with job security – by searching for more structural solutions.

As already mentioned above, the medicalization hypothesis of unemployment and job insecurity are mainly supported in my work, but it should not be forgotten that unemployment and job insecurity are effectively related to worse mental health and those involved have a higher need for mental health care than the employed without job insecurity. Given the increasing proportion of the unemployed in many European countries – as a consequence of the economic crisis – and their higher risk of mental health problems, in combination with my evidence for the medicalization of unemployment, health service utilization and over-utilization (beyond need) will impose a substantial burden on public health expenditure unless structural reforms and/or others means of psychological and social support are provided (Studnicka et al., 1991). Research also shows that the unemployed still report unmet need, even when they have contacted a medical professional and/or taken psychotropic drugs. This is not surprising, because in most cases, what they really need and want is meaningful work with good job conditions (Fryer, 1984).

To increase the chances of the unemployed gaining work, it is crucial to continue to target health and to help those affected to improve their health at an early stage of unemployment.

[49] Frictional unemployment is unemployment that is always present in the economy. It is temporary unemployment arising from inevitable time lags in the functioning of labor markets, such as the time taken in moving from one job to another. Frictional unemployment is a reason why full employment is never reached [http://www.businessdictionary.com].

Unemployed people who have developed mental health problems and received a medical diagnosis might experience not only a decline in their quality of life, but also difficulties in returning to work. Clearly, the most efficient way to reduce the problems related to unemployment would be to reduce the incidence of it. However, the healthcare system could also play a role, by not contributing to the medicalization of unemployment, but ensuring that health does not hinder people from returning to work (Ahs, Burell, & Westerling, 2012).

In my last empirical study, the results show that health care generosity has an enhancing impact on the medicalization of unemployment. This is a very important finding, but also a risky one that can be misinterpreted. Other researchers have already warned that the effects of austerity measures – among other things, health care cuts – are detrimental to health care outcomes (De Vogli, 2013; Kondilis et al., 2013; Kondilis et al., 2012; McKee et al., 2012). Equal access to and treatment in healthcare are and remain very important human rights, and there are still many improvements possible. Investment in order to improve health care generosity should continue to be encouraged, in particular in the mental health care sector. In several countries, this part of the health care system remains under-developed, although mental health problems account for about 20 percent of the total burden of ill health in Europe (WHO, 2004). The financial resources that can be used for the mental health sector are not endless, even in rich countries and countries with a relatively high level of health care generosity (Annemans, 2014).

The total expenditure on mental health care services and psychiatric pharmaceuticals keeps growing in several West-European countries (Cassano & Fava, 2002; Hermans et al., 2012), but it cannot continue to increase (Annemans, 2014). Services should therefore be used efficiently to deal with as many people as possible who need medical help. In my opinion, the medicalization of unemployment and job uncertainty – understood as mental health care consumption beyond need – does not belong in this sector, and I believe the unemployed and those with job insecurity could be better helped in other ways. When focusing on health policy, simultaneously ameliorating health and decreasing medicalization is possible, when we consider the dominant position of medicine in the formal care system. We need to devote more resources to other professional care givers, such as psychologists, social workers, job coaches in multidisciplinary community centers (Gielis, 2010). A more intensive

collaboration is needed between these experts, the target group (the unemployed and the employed in precarious work), government institutions (such as the Flemish employment and vocational training, VDAB), and policymakers, who can all have their say in a non-hierarchical fashion. This could also be linked to the debate on the reimbursement of psychologists' contracts (Gielis, 2010; Knack.be, 2015), which might result in a reduction of the workload for medical professionals, giving them more time for other patients.

Although, I did not find any notable effect of the gatekeeping system on mental health care use, and controlling for it did not change the medicalization of unemployment, more research is recommended to examine the potential impact of a gatekeeping system in this regard. In my work, information is only available about whether people had contacted a doctor or not (information about the number of GP contacts was only available in Study 2), but not about the number of visits to medical professionals or the amount and duration of medication use. It is also important to understand the differences between the types of gatekeeping systems in terms of their impact on medicalization. In some systems, a referral by a GP to a specialist is obligatory, while in other systems it is only financially encouraged. Researchers have found that in general, the gatekeeping system seems to be an effective remedy against over utilization of the ambulatory health care system, doctor hopping, consumerism, and the medicalization of daily hazards within society (Linden, Gothe, & Ormel, 2003). Belgium currently does not have a gatekeeping system, but after a thorough investigation including the medicalization issue, this debate needs to be re-opened.

However, it is not only health care policies that are relevant. Equally important are social policies, which are able to provide more structural solutions that may also address the root causes of problems. Social policy measures can have an important impact on the unemployed and employed, and their mental health and care use, as well as on the health and health care of the population as a whole. Accordingly, for improved health outcomes it is very important to not only focus on health policy. In Belgium, for example, in response to the government debt, stricter entitlement rules have been implemented for the unemployed, in order to reduce the unemployment rate and government expenditure on unemployment. In relevant literature, policies of this type are seen as passive activation measures (Knotz, 2012; Knotz & Nelson, 2013). It has recently become possible to evaluate these stricter rules, based on annual reports

including unemployment figures (RVA, [http://www.rva.be]), and sickness and disability beneficiaries (RIZIV, [http://www.riziv.fgov.be]). On the one hand, the government department for labor (RVA) has shown that the unemployment rate and unemployment expenditure have been reduced substantially, however, this is due to the stricter rules and the aging population rather than because of new, additional jobs (Abbeloos, 2015). On the other hand, these reductions have been offset by an increase in the number of sick or disabled, especially the chronically ill and disabled, relying on sickness and disability benefits, as reported by the government department for sickness and disability insurances (RIZIV). The number of minimum income beneficiaries has also increased. This shows how important it is to combine policy measures in several social domains, as they influence each other. The example of Belgium can be seen as a shift from unemployment to hidden unemployment via sickness and disability benefits. Nevertheless, it means the problem of medicalization of unemployment and precarious work remains very relevant.

As already mentioned, hidden unemployment can be considered another part of the medicalization process, which needs more attention in social research and among policymakers. In other European countries, such as the Netherlands, some policy reforms have already been implemented to reduce hidden unemployment (Koning & van Vuuren, 2006). In the Netherlands, employers are responsible for paying 70 percent of the wages of sick and disabled employees for at least two years, and during that period they are also responsible for the reintegration of those employees (Abbeloos, 2016). If one of the two parties is insufficiently motivated toward reintegration, there are sanctions available: For the employer, paying the salary proportion for a third year, and for employees, the discontinuation of benefits. The evaluation of the program is that hidden unemployment has been sharply reduced, but other problems have become manifest. These include an increase in fake self-employment and job insecurity, and employers being less likely to offer unlimited contracts. As a result, jobs with limited and even no contracts have increased. Temporary employment has also been found to be detrimental for people's mental health and is linked to increased use of psychotropic medication (Virtanen et al., 2008; Virtanen, Janlert, & Hammarstrom, 2011).

Re-integration policies for employees who are at home due to chronic sickness or disability are possibly good initiatives to deal with hidden unemployment. However, they have to be constructed and implemented with mutual agreement between employers, employees, and policymakers, because sanctions and additional rules and complexity, imposed from above, are mostly counterproductive. Further, the position of employers is very important with regard to the topics of unemployment and precarious work, as employers obviously create jobs and can contribute to the improvement of job conditions. This brings us to the next topic: Precarious employment.

Policymakers could use my research results to set priorities regarding unemployment, but also regarding precarious work. In post-industrial economies, and especially in times of economic instability, researchers and policymakers need to pay particular attention to the employed in insecure jobs (Dixon et al., 2013). In addition to the unemployed, people employed in insecure jobs (who are greater in number), should also be considered as a risk group for mental health problems and medicalization. It is not only the actual rise in unemployment that increases the frequency of mental health problems–and consequently the demand for care–in times of economic recession, but also the fear generated by the increased possibility of unemployment. My results also stress that it is not only the unemployed who are more depressed in countries hardest hit by the crisis. Specific subgroups of the employed (part-time workers, workers with job insecurity) and the non-employed (male students, the disabled) are more likely to suffer from mental health problems and should not be forgotten by policymakers. Targeted policies are also required to reduce the negative mental health effects for those most vulnerable to the economic crisis, such as middle-aged men.

Lastly, there is a fine line between acknowledging the agency of people in unemployment, and blaming them and holding them responsible for their situation (Murray, 1996). I believe we must keep in mind that in the majority of the cases, being unemployed is not a person's choice, and rarely a positive choice. Only among a minority is being unemployed a preferred and voluntary choice, based on a rational weighing up between having a job and wage versus having free time and unemployment benefits. As argued by Murray (1996), it is very important to seek a good balance between a behavioristic approach and a structural approach to unemployment. The unemployed are actors with agency and not passive victims, but there

are also structural constraints that limit their opportunities. They can make mistakes and wrong decisions, as anybody can, but their choices are often constrained. Instead of blaming the unemployed, based on Murray's work (1996) and my own opinion, literature study, and research results I believe the involvement of all social partners, and certainly the unemployed themselves, is crucial. What will the unemployed invest in? What do the unemployed propose as good labor-market programs and policies? There is a need for springboards for the unemployed: In the shape of positive social and emotional help, improved financial support to reduce stress, and opportunities for education and training. In addition, more effort is needed concerning public opinion, in order to tackle stigma toward the unemployed and stereotypes of unemployed people (such as "the unemployed are lazy, they do not want to work, and there is something wrong with them"). The image of the unemployed in the media should be adapted to a more realistic and positive presentation, rather than relying on negative stereotypes.

5. Research highlights

In sum, I want to conclude this research project with a list of my research highlights:

RESEARCH HIGHLIGHTS

Medicalization: Job insecurity and unemployment might lead to over-reliance on mental health professionals and antidepressants.

Social norms: Unemployed men medicalize more if unemployment is less prevalent, and if their unemployment is not due to displacement.

Economic crisis: There is an increase in depression in countries strongly affected by the crisis, and this impact is not restricted to the unemployed.

Macroeconomic conditions are directly related to men's mental health care use, as they medicalize their problems more in countries with an increase in unemployment via GP consultations. Psychiatrist consultations are less likely among employed men in countries with a strong decrease in GDP.

Institutional level: The more generous the health care system, the more likely the medicalization of unemployment.

Gender: Although the medicalization of unemployment is found among women and men, men's mental health and care use is more influenced by economic condition (the crisis) and social norms.

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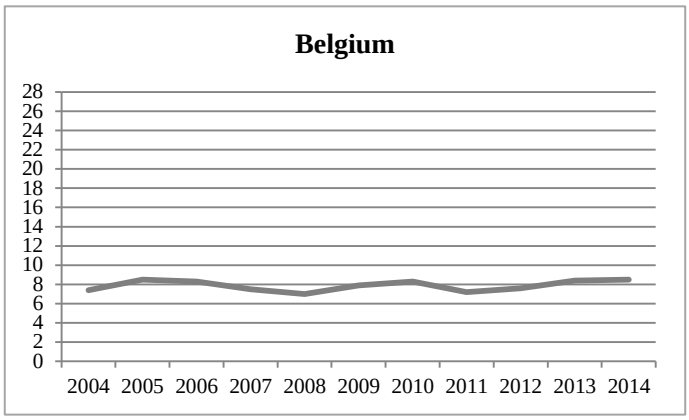
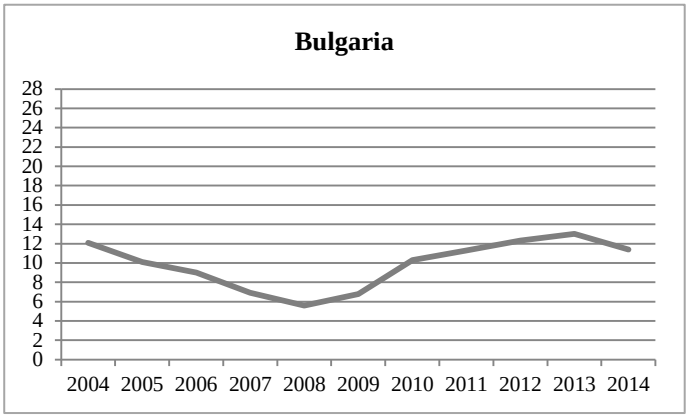
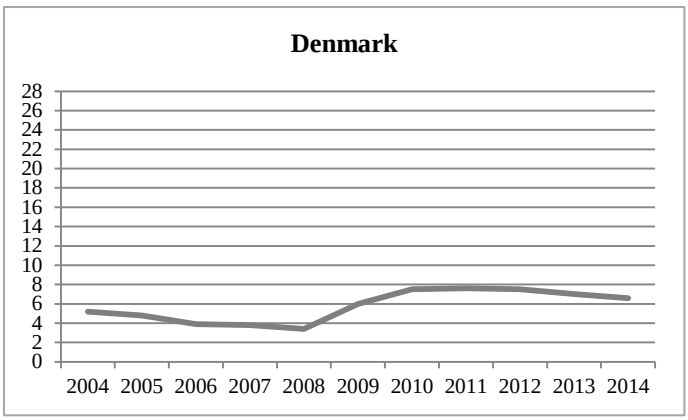
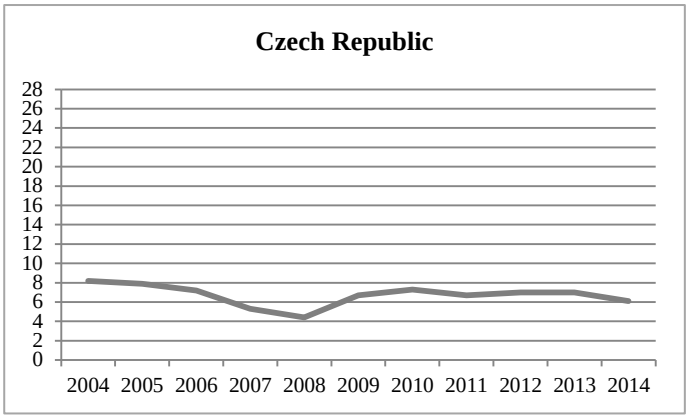
APPENDIX

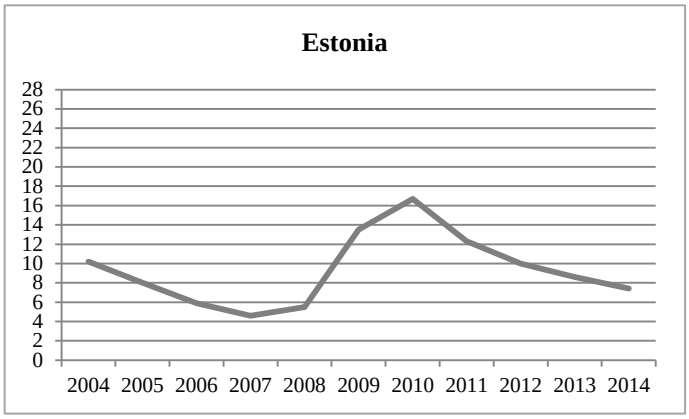
Appendix 1: Unemployment rates per country from 2004 to 2014 (Source: Eurostat)

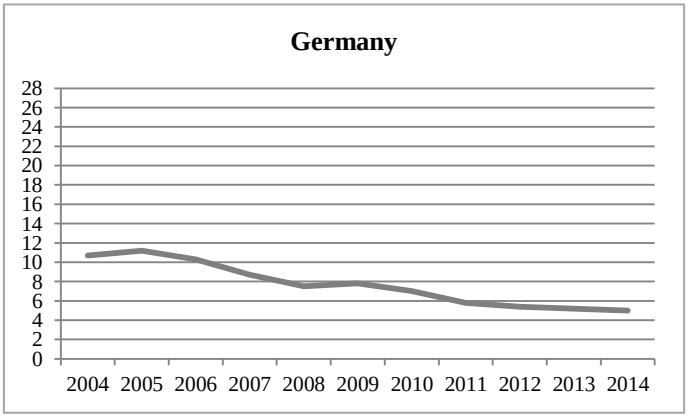


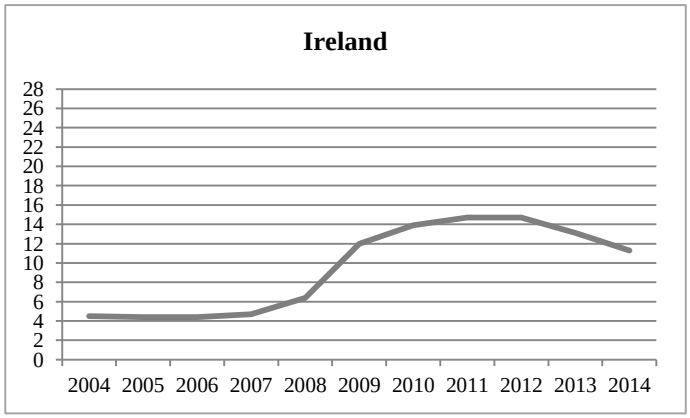


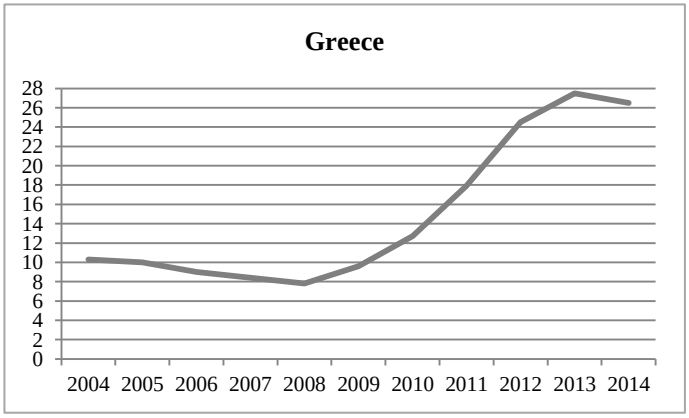


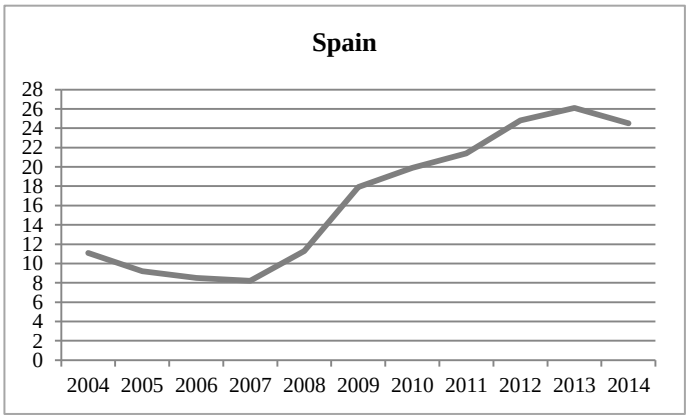








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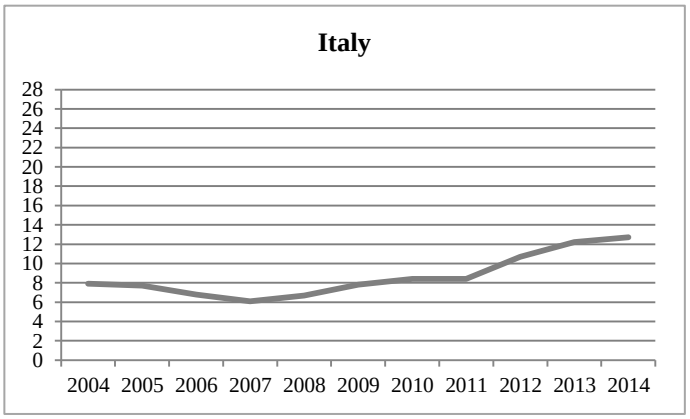
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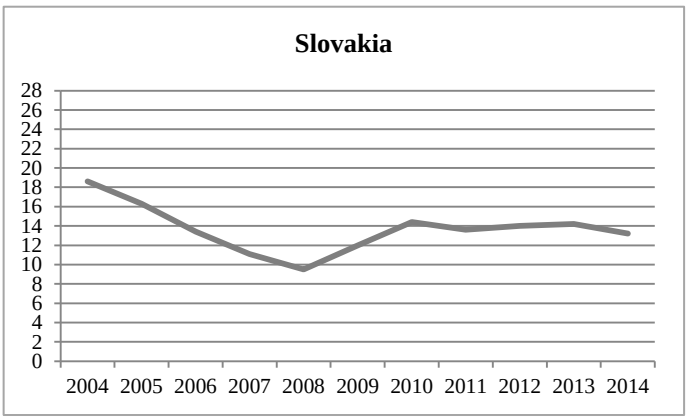
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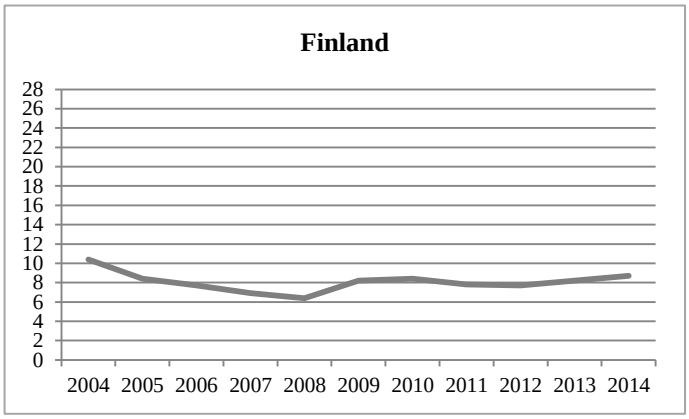
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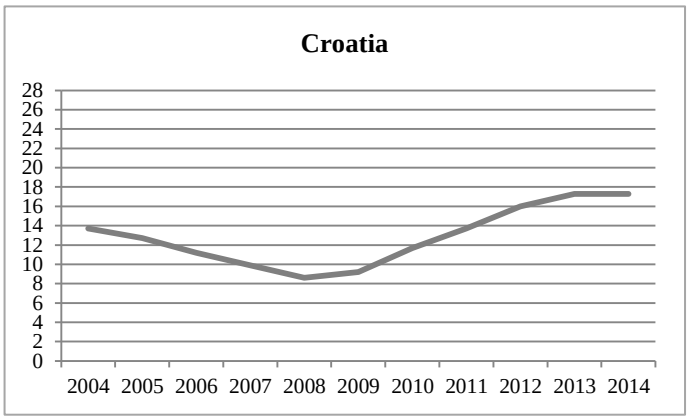
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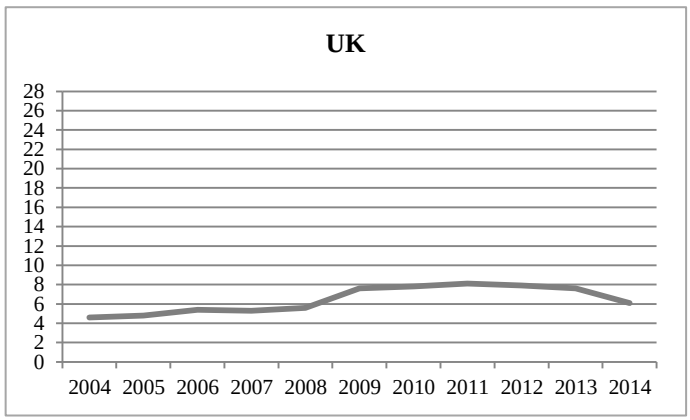
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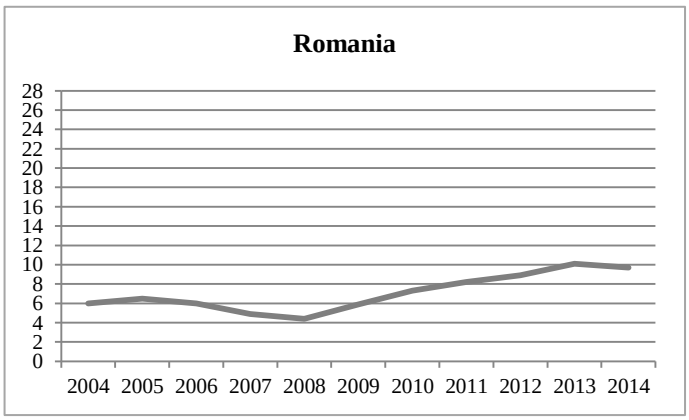
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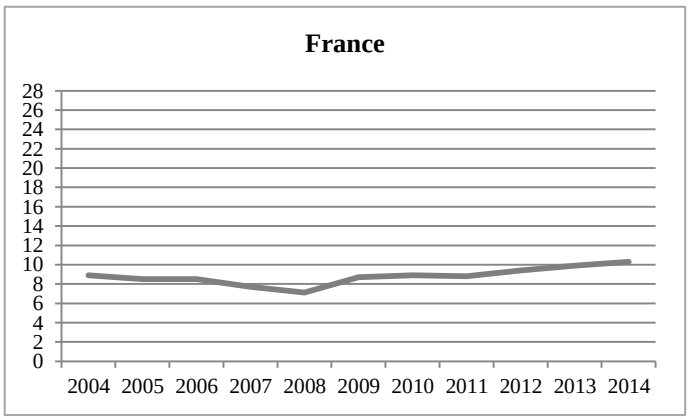
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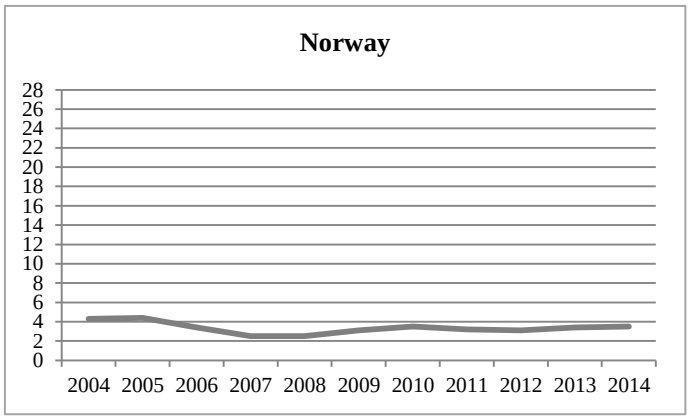
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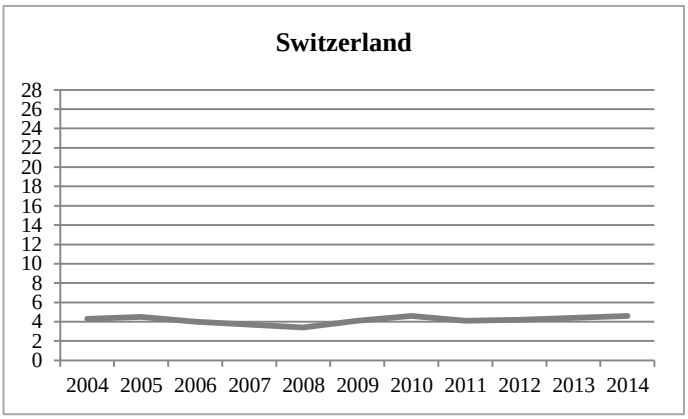
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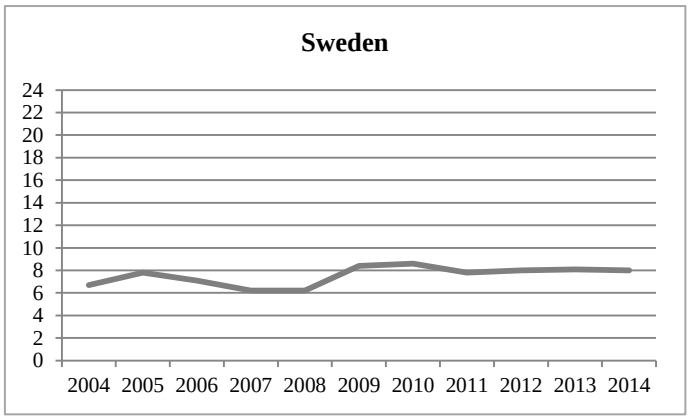
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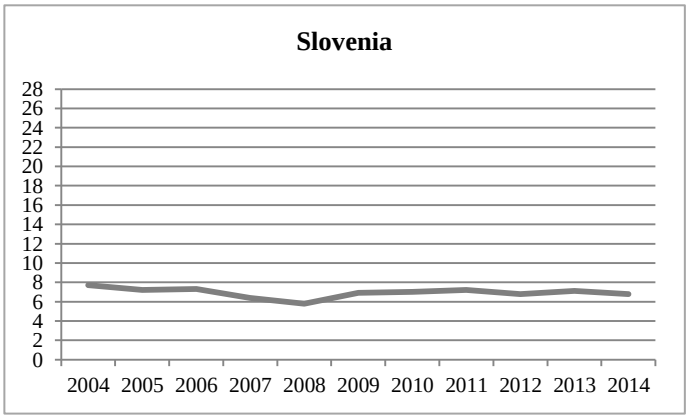
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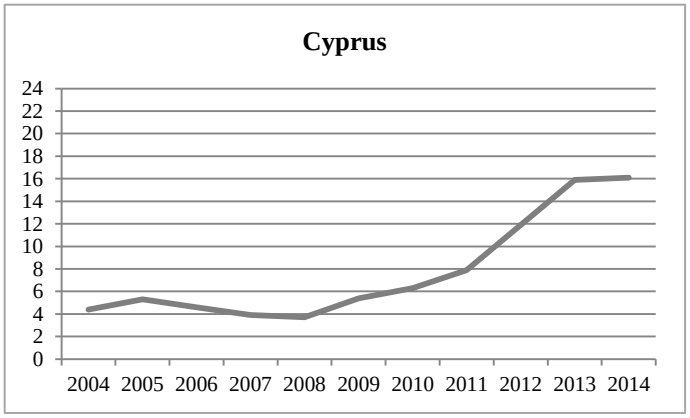
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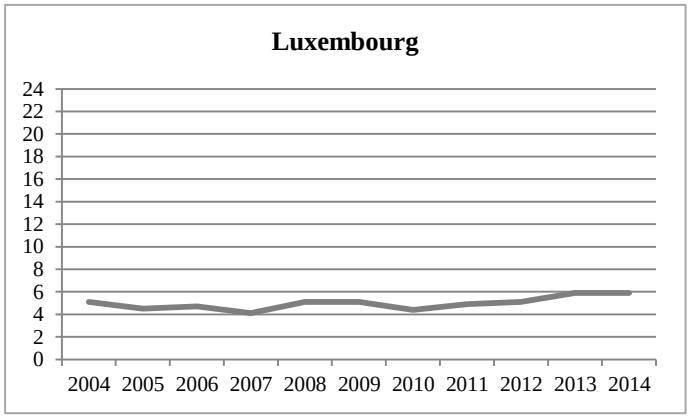
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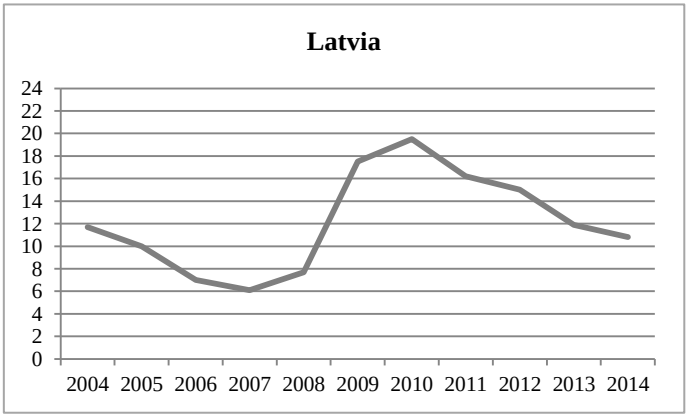
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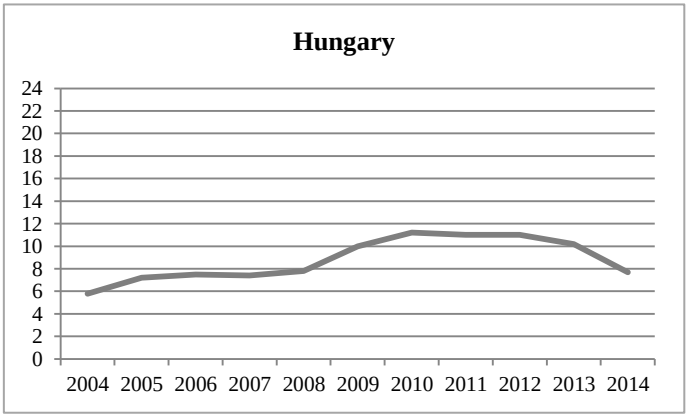
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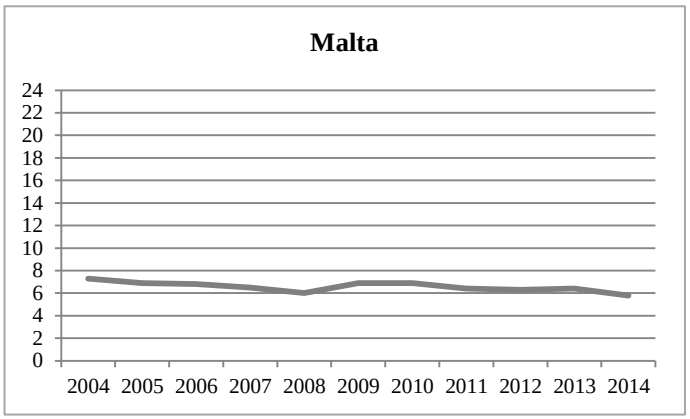
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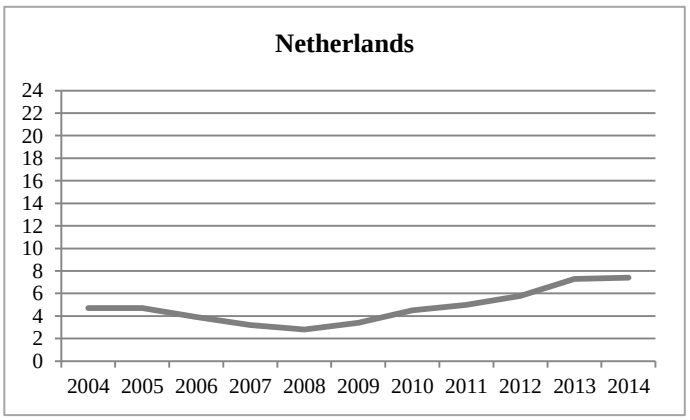
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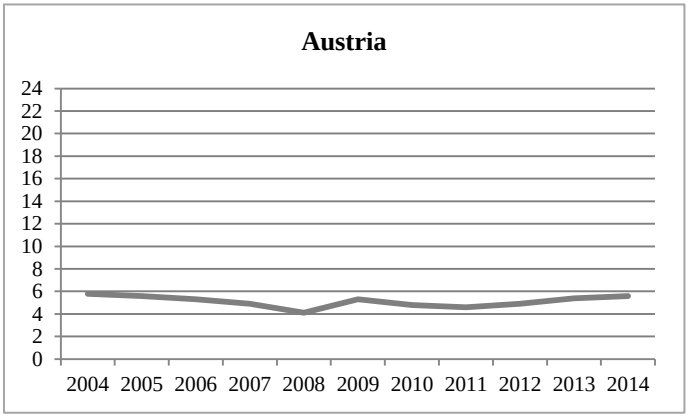
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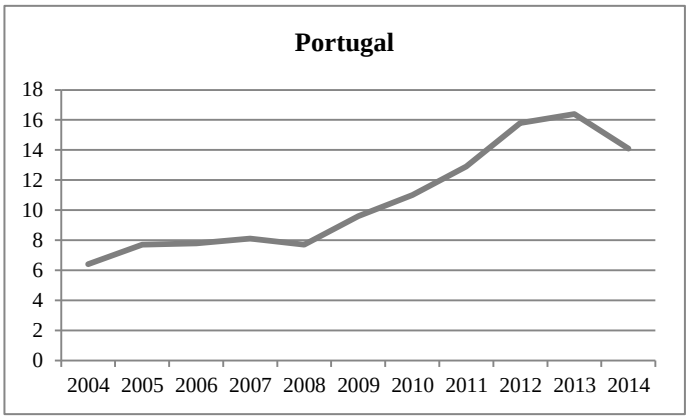
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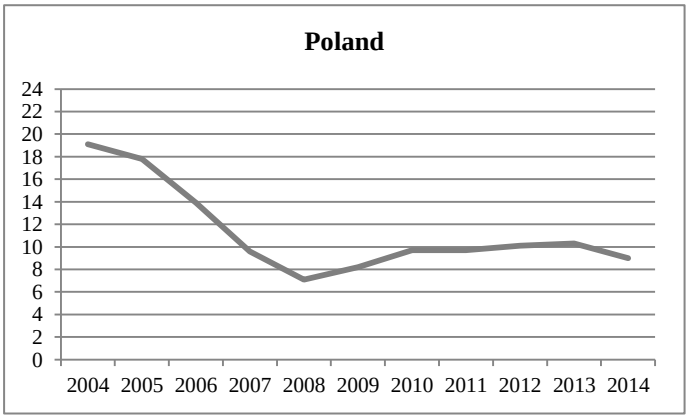
Poland
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2004 2005 2006 2007 2008 2009 2010 2011 2012 2013 2014

Appendix 2: Items of the three mental heatlh scales (MHI-5, CES-D 8, & EURO-D 12)

MHI-5 (EUROBAROMETER)	
Over the last 4 weeks, how often:	
1	have you felt so down in the dumps that nothing could cheer you up?
2	have you felt downhearted and blue?
3	have you been a happy person?'
4	have you been a very nervous person?
5	have you felt calm and peaceful?
Each item has six possible responses ranging from 'all the time' (1 point) to 'none of the time' (6 points). The answers of the third and fifth question need to be reversed.	
CES-D 8 (ESS)	
How much of the time during the past week	
1	did you feel depressed?
2	did you feel everything you did was an effort?
3	was your sleep restless?
4	were you happy?
5	did you feel lonely?
6	did you enjoy life?
7	did you feel sad?
8	were you unable to get going?
Answers range from 0 (none or almost none of the time) to 3 (all or almost all of the time)	
EURO-D 12 (SHARE)	
In the last month	
1	have you been sad or depressed? *by sad or depressed, we mean miserable, in low spirits*
2	what are your hopes for the future? *Any/no hopes mentioned*
3	have you felt that you would rather be dead? *Any/no mention of suicidal feelings or wishing to be dead*
4	do you tend to blame yourself or feel guilty about anything? *Obvious and excessive guilt or self-blame/no such feelings*
5	have you had trouble sleeping recently? *No/trouble with sleep or recent change in pattern*
6	what is your interest in things? *Less interest than usual mentioned/no mention of loss of interest*
7	have you been irritable recently? *yes/no*
8	what has your appetite been like? *No/diminution in desire for food*
9	have you had too little energy to do the things you wanted to do? *yes/no*
10	can you concentrate on something you read? *yes/no*
11	what have you enjoyed doing recently? *Fails to mention any enjoyable activity/ Mentions ANY enjoyment from activity*
12	have you cried at all? *yes/no*

Appendix 3: Bivariate contrast analyses: job insecurity (categorical with 4 cat. & dichotomous) and mental health care - and antidepressant use *(Study 1).*

					% GP-consultations				% psychiatrist consultations				% antidepressant use			
				distribution (%)	1-2 & 3-4		0-1		1-2 & 3-4		0-1		1-2 & 3-4	a	0-1	
Men	1	Totally agree	0 Insecurity	7,2	12,6	n.s.			1,7	n.s.			7,8	**		
	2	Tend to agree		23,0	9,6		***		0,6		n.s.		3,6		***	
	3	Tend to disagree	1 Security	31,8	7,4	*			0,6	n.s.			2,7	n.s.		
	4	Totally disagree		38,1	5,7				0,8				2,7			
Women	1	Totally agree	0 Insecurity	7,4	13,2	n.s.			2,4	n.s.			10,3	n.s.		
	2	Tend to agree		20,5	14,7		***		1,1		n.s.		10,1		***	
	3	Tend to disagree	1 Security	31,3	10,7	n.s.			1,0	n.s.			5,9	n.s.		
	4	Totally disagree		40,8	9,0				1,0				5,4			

Only the among the employed (N_{men} = 5 870; N_{women} = 5 540)

To test whether the differences are significant we have used a $Chi^2(df)$-test

* p < 0,050 ** p < 0,010 *** p < 0,001

Appendix 4: Results of the 'test of interaction' with gender for the estimates of employment on mental health care and antidepressant use *(Study 1).*

Estimates of employment (ref. unemployed)																				
Estimates (E) =	logodds														b-coefficients					
	General Practitioner				Psychiatrist				Antidepressant Use						Mental Health					
	M1		M3		M1		M3		M1		M3		M4		M1			M2		
	men (1)	women (2)	men (1)	women (2)	men (1)	women (2)	men (1)	women (2)	men (1)	women (2)	men (1)	women (2)	men (1)	women (2)	men (1)	women (2)		men (1)	women (2)	
E	-0,375	-0,435	0,071	-0,090	-1,463	-1,272	-1,052	-0,768	-1,115	-0,767	-0,466	-0,331	-0,391	-0,214	0,339	0,240		0,222	0,129	
SE	0,121	0,098	0,133	0,107	0,246	0,215	0,278	0,233	0,138	0,108	0,158	0,124	0,183	0,142	0,022	0,024		0,023	0,023	
difference between Es																				
d[=E1-E2]	0,060		0,161		-0,191		-0,284		-0,348		-0,135		-0,177		0,099			0,093		
SE(d)	0,156		0,171		0,327		0,363		0,175		0,201		0,232		0,033			0,033		
Test of interaction (z=)	0,385		0,943		-0,585		-0,783		-1,986		-0,672		-0,764		3,041	**		2,859	**	
Estimates of job security																				
E	-0,523	-0,440	-0,234	-0,113	-0,127	-0,451	0,232	-0,028	-0,604	-0,665	-0,156	-0,223	-0,194	-0,214	0,258	0,290		0,192	0,205	
SE	0,104	0,092	0,110	0,018	0,334	0,276	0,347	0,286	0,152	0,111	0,172	0,110	0,175	0,132	0,019	0,021		0,019	0,020	
difference between Es																				
d[=E1-E2]	-0,083		-0,121		0,324		0,260		0,061		0,067		0,020		-0,032			-0,013		
SE(d)	0,139		0,111		0,433		0,450		0,188		0,204		0,219		0,028			0,028		
Test of interaction (z=)	-0,598		-1,086		0,748		0,578		0,324		0,328		0,091		-1,130			-0,471		

* p < 0,050 ** p < 0,010 *** p < 0,001

Appendix 5.a: Sensitivity analysis: Mental health regressed on employment, job insecurity, and control variables, among men and women, by using a country fixed-effects approach *(Study 1).*

	Mental health (MHI-5)											
	Men						Women					
	Model 1[(a)]			Model 2[(ab)]			Model 1[(a)]			Model 2[(ab)]		
	b	(SE)		b	(SE)		b	(SE)		b	(SE)	
Constant	3,525	0,034	***	3,621	0,041	***	3,571	0,036	***	3,638	0,041	***
Work status (ref. Unemployed)												
Employed	0,415	0,023	***	0,309	0,025	***	0,320	0,024	***	0,159	0,042	***
Homemaker	0,082	0,077		0,054	0,075		0,169	0,028	***	0,100	0,028	***
Student	0,327	0,038	***	0,266	0,043	***	0,283	0,040	***	0,244	0,043	***
Retired /unable to work because of illness	0,207	0,027	***	0,174	0,031	***	0,063	0,028	*	0,075	0,030	*
Job security[(c)]	0,256	0,019	***	0,193	0,018	***	0,288	0,021	***	0,206	0,020	***
Financial difficulties (ref. no difficulties)				-0,291	0,015	***				-0,335	0,015	***
Employed x proportion unemployment				-0,001	0,003					0,004	0,004	

p < 0,050 ** p < 0,010 *** p < 0,001; N individual men = 8 628 and women = 10 168.

(a) this is controlled for the dummy countries.

(b) this is also controlled for age, marital status, degree of urbanisation, attitude, education and the interaction effects between the other categories of work status (versus unemployed) and the proportion of unemployed.

(c) Measured as deviations from the mean for employed people.

Appendix 5.b: Sensitivity analysis: Mental health care and antidepressant use regressed on employment, job insecurity, and control variables, among men, by using a country fixed-effects approach *(Study 1).*

Men	**GP**			**Psychiatrist**			**Antidepressant use**			
	Model 1[(a)]	Model 2[(a)]	Model 3[(ab)]	Model 1[(a)]	Model 2[(a)]	Model 3[(ab)]	Model 1[(a)]	Model 2[(a)]	Model 3[(ab)]	Model 4[(ab)]
	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR
Constant	0,340 ***	0,265 ***	0,265 ***	0,221 ***	0,153 ***	0,122 ***	0,308 ***	0,189 ***	0,194 ***	0,157 ***
Work status (ref. Unemployed)										
Employed	0,753 ***	0,965	1,016	0,470 ***	0,636 ***	0,659 **	0,503 ***	0,730 ***	0,787 *	0,804 *
Homemaker	1,040	1,130	1,122	1,012	1,119	1,231	1,309	1,540 *	1,586 **	1,618 *
Student	0,740 **	0,891	0,946	0,468 **	0,567	0,570	0,409 ***	0,516 **	0,526 **	0,560 *
Retired/unable to work because of illness	1,223 **	1,386 ***	1,364 ***	1,049	1,166	1,548 **	1,151 *	1,407 ***	1,520 ***	1,316 **
Job security[(c)]	0,879 ***	0,868 **	0,887 *	1,079	0,910	0,899	0,720 ***	0,883	0,914	0,905
Mental health		0,594 ***	0,606 ***		0,510 ***	0,511 ***		0,443 ***	0,458 ***	0,543 ***
Degree of urbanisation (ref. large city)										
Rural			0,953			1,054			0,852 *	0,810 **
Small city			0,993			0,941			0,881	0,876
Financial difficulties (ref. no difficulties)			1,128 *			1,209			1,253 ***	1,191 **
Employed x proportion unemployment			0,996			0,979			0,999	1,001
GP consultation										2,894 ***
Psychiatrist consultation										6,289 ***

* p < 0,050 ** p < 0,010 *** p < 0,001; N individual men = 8 628.

(a) this is controlled for the dummy countries.

(b) this is also controlled for age, marital status, degree of urbanisation, attitude, education and the interaction effects between the other categories of work status (versus unemployed) and the proportion of unemployed.

(c) Measured as deviations from the mean for employed people.

Appendix 5.c: Sensitivity analysis: Mental health care and antidepressant use regressed on employment, job insecurity, and control variables, among men, by using a country fixed-effects approach *(Study 1).*

Women	**GP**						**Psychiatrist**						**Antidepressant use**							
	Model 1[(a)]		Model 2[(a)]		Model 3[(ab)]		Model 1[(a)]		Model 2[(a)]		Model 3[(ab)]		Model 1[(a)]		Model 2[(a)]		Model 3[(ab)]		Model 4[(ab)]	
	OR		OR		OR		OR		OR		OR		OR		OR		OR		OR	
Constant	0,347	***	0,334	***	0,347	***	0,222	***	0,167	***	0,178	***	0,325	***	0,243	***	0,235	***	0,157	***
Work status (ref. Unemployed)																				
Employed	0,768	***	0,914		0,926		0,500	***	0,672	***	0,679	**	0,609	***	0,814	**	0,758	**	0,835	
Homemaker	1,004		1,006		1,004		0,824		0,925		0,985		0,878	*	1,011		0,993		0,978	
Student	0,856		0,863	*	0,856		0,607	*	0,779		0,727		0,699	***	0,894		1,077		1,253	
Retired /unable to work because of illness	1,077		1,133		1,077		0,949		1,002		1,001		1,128	*	1,230	**	1,033		1,015	
Job security [(b)]	0,818	**	0,931		0,944		0,788		0,978		0,996		0,705	***	0,875	*	0,895	*	0,898	
Mental health			0,575	***	0,589	***			0,491	***	0,504	***			0,553	***	0,470	***	0,553	***
Degree of urbanisation (ref. large city)																				
Rural					1,017						0,883						0,907		0,929	
Small city					0,954						0,882						1,013		1,031	
Financial difficulties (ref. no difficulties)					1,077						1,101						1,188	***	1,165	**
Employed x proportion unemployment					1,002						1,010						1,013		1,008	
GP consultation																			3,073	***
Psychiatrist consultation																			6,521	***

* p < 0,050 ** p < 0,010 *** p < 0,001; N individual women = 10 168.

(a) this is controlled for the dummy countries.
(b) this is also controlled for age, marital status, degree of urbanisation, attitude, education and the interaction effects between the other categories of work status (versus unemployed) and the proportion of unemployed.
(c) Measured as deviations from the mean for employed people.

Appendix 6.a: Mental health regressed on employment, job insecurity, and control variables, with interaction effects of gender *(Study 1).*

Men & women *together:* A = model with interaction effect of gender with work status; B = model with interaction effect of gender with job security

	Mental health (MHI_5)																	
	Model 1			Model 1.A[(a)]			Model 1.B			Model 2[(b)]			Model 2.A[(ab)]			Model 2.B[(b)]		
	b	(SE)		b	(SE)		b	(SE)					b	(SE)		b	(SE)	
Constant	3,444	0,033	***	3,491	0,036	***	3,448	0,033	***	3,560	0,032	***	3,594	0,035	***	3,564	0,032	***
Gender (ref. women)	0,130	0,010	***	0,034	0,029		0,121	0,011	***	0,116	0,011	***	0,043	0,029		0,107	0,012	***
Work status (ref. Unemployed)																		
Employed	0,369	0,017	***	0,315	0,023	***	0,369	0,017	***	0,238	0,017	***	0,196	0,023	***	0,238	0,017	***
Homemaker	0,199	0,023	***	0,159	0,027	***	0,195	0,023	***	0,124	0,022	***	0,096	0,026	***	0,120	0,022	***
Student	0,306	0,028	***	0,283	0,039	***	0,306	0,028	***	0,248	0,030	***	0,230	0,040	***	0,248	0,030	***
Retired or unable to work due to illness	0,139	0,020	***	0,068	0,027	*	0,139	0,020	***	0,120	0,021	***	0,075	0,028	**	0,120	0,021	***
Job security [(c)]	0,269	0,014	***	0,270	0,014	***	0,293	0,020	***	0,193	0,014	***	0,194	0,014	***	0,218	0,019	***
Interactions with gender																		
Gender (men) x employed				-0,110	0,032	***							0,086	0,031	**			
Gender (men) x job security							0,046	0,026								0,047	0,025	
Variance																		
Country	0,448	0,005	***	0,447	0,005	***	0,448	0,005	***	0,417	0,004	***	0,417	0,004	***	0,417	0,004	***
Individual	0,023	0,006	***	0,022	0,006	***	0,023	0,006	***	0,014	0,004	***	0,014	0,004	***	0,014	0,004	***
ρ[(d)]	0,049			0,047			0,049			0,032			0,032			0,032		
-2LL	38342807			38321589			38339714			36980093			36968329			36976625		

* p < 0,050 ** p < 0,010 *** p < 0,001; N individual 18 796; N country = 27.
(a) The interaction effects with gender and the other work status categories are also included.
(b) This is also controlled for age, financial difficulties, marital status, degree of urbanisation, attitude, education, and the macro variables.
(c) Measured as deviations from the mean for employed people.
(d) Intra-class correlation = σ^2country/(σ^2country+ σ^2individual).

Appendix 6.b: GP consultations regressed on employment, job insecurity, and control variables, with interaction effects with gender *(Study 1).*

	General practitioner											
	Model 1		Model 1.A[(a)]		Model 1.B		Model 3[(b)]		Model 3.A[(ab)]		Model 3.B[(b)]	
	OR		OR		OR		OR		OR		OR	
Constant	0,391	***	0,407	***	0,391	***	0,357	***	0.376	***	0.358	***
Gender (ref. women)	0,809	***	0,752	***	0,808	***	0,893	***	0.783	**	0.990	
Work status (ref. Unemployed)												
Employed	0,752	***	0,733	***	0,752	***	0,967		0.917		0.967	
Homemaker	0,934		0,897		0,934		1,043		0.982		1.040	
Student	0,732	***	0,721	***	0,732	***	0,894		0.863		0.894	
Retired or unable to work due to illness	1,145	**	1,067		1,145	**	1,193	**	1.070		1.192	***
Job security [(c)]	0,779	***	0,779	***	0,784	***	0,915	*	0.916	*	0.931	
Interactions with gender												
Gender (men) x employed			1,071						1.135			
Gender (men) x job security					0,994						0.965	
Mental health							0.594	***	0.594	***	0.594	***
Variance												
Country	0,202	0,060	0,200	0,059	0,202	0,060	0.272	0.079	0.271	0.079	0.273	0.079
VPC[(d)]	0,058		0,057		0,058		0,076		0,076		0,077	

* p < 0,050 ** p < 0,010 *** p < 0,001; N individual = 18 796; N country = 27.

(a) The interaction effects with gender and the other work status categories are also included.

(b) This is also controlled for age, financial difficulties, marital status, degree of urbanisation, attitude, education and the macro variables.

(c) Measured as deviations from the mean for employed people.

(d) Variance Partition Coefficient = σ^2country/(σ^2country + 3,29).

Appendix 6.c: Psychiatrist consultations regressed on employment, job insecurity, and control variables, with interaction effects with gender *(Study 1).*

	Psychiatrist											
	Model 1		Model 1.A[(a)]		Model 1.B		Model 3[(b)]		Model 3.A[(ab)]		Model 3.B[(b)]	
	OR		OR		OR		OR		OR		OR	
Constant	0,184	***	0,188	***	0,182	***	0.111	***	0.114	***	0.110	***
Gender (ref. women)	0,905		0,910		0,934		1.045		1.018		1.079	
Work status (ref. Unemployed)												
Employed	0,481	***	0,511	***	0,481	***	0.665	***	0.692	**	0.664	***
Homemaker	0,798	*	0,793		0,809	*	0.991		0.973		1.003	
Student	0,527	***	0,598	*	0,527	***	0.622	*	0.706		0.621	*
Retired or unable to work due to illness	1,018		0,964		1,018		1.234	*	1.134		1.234	*
Job security [(c)]	0,850		0,847		0,005		1.046		1.044		0.946	
Interactions with gender												
Gender (men) x employed			0,910						0.932			
Gender (men) x job security					1,245						1.239	
Mental health							0.507	***	0.507	***	0.507	***
Variance												
Country	0,203	0,082	0,204	0,082	0,205	0.082	0.334	0.121	0.333	0.120	0.336	0.121
VPC[(d)]	0,058		0,058		0,059		0,092		0,092		0,093	

* p < 0,050 ** p < 0,010 *** p < 0,001; N individual = 18 796; N country = 27.

(a) The interaction effects with gender and the other work status categories are also included.

(b) This is also controlled for age, financial difficulties, marital status, degree of urbanisation, attitude, education and the macro variables.

(c) Measured as deviations from the mean for employed people.

(d) Variance Partition Coefficient = σ^2country/(σ^2country + 3,29).

Appendix 6.d: Antidepressant use regressed on employment, job insecurity, and control variables, with interaction effects with gender *(Study 1).*

	Antidepressant use																	
	Model 1		Model 1.A[(a)]		Model 1.B		Model 3[(b)]		Model 3.A[(ab)]		Model 3.B[(b)]		Model 4[(b)]		Model 4.A[(ab)]		Model 4.B[(b)]	
	OR		OR		OR		OR		OR		OR		OR		OR		OR	
Constant	0,376	***	0,370	***	0,372	***	0,232	***	0,236	***	0,229	***	0,172	***	0,173	***	0,171	***
Gender (ref. women)	0,728	***	0,786	**	0,755	***	0,834	***	0,832	*	0,859	***	0,824	***	0,857		0,846	***
Work status (ref. Unemployed)																		
Employed	0,565	***	0,605	***	0,566	***	0,805	***	0,827	**	0,806	***	0,847	**	0,878		0,848	**
Homemaker	0,852	**	0,856	*	0,863	*	1,018		0,989		1,029		0,981		0,966		0,990	
Student	0,584	***	0,685	***	0,584	***	0,863		0,997		0,863		0,974		1,141		0,975	
Retired or unable to work due to illness	1,146	**	1,114		1,146	**	1,213	**	1,122		1,214	***	1,133		1,087		1,133	
Job security [(c)]	0,715	***	0,712	***	0,672	***	0,898	*	0,895	*	0,852	**	0,903		0,900		0,864	
Interactions with gender																		
Gender (men) x employed			0,850						0,932						1,093			
Gender (men) x job security					1,157						1,147						1,117	
Mental health							0,466	***	0.466	***	0,466	***	0,552	***	0,553	***	0,553	***
GP consultations													3,068	***	3,065	***	3,068	***
Psychiatrist consultations													6,951	***	6,948	***	6,941	***
Variance																		
Country	0,114	0,037	0,112	0,037	0,114	0,037	0,259	0,077	0,255	0,077	0,259	0,078	0,151	0,050	0,150	0,050	0,151	0,050
VPC[(d)]	0,033		0,032		0,033		0,071		0,070		0,071		0,043		0,042		0,043	

* p < 0,050 ** p < 0,010 *** p < 0,001; N individual = 18 796; N country = 27.

(a) The interaction effects with gender and the other work status categories are also included.

(b) This is also controlled for age, financial difficulties, marital status, degree of urbanisation, attitude, education and the macro variables.

(c) Measured as deviations from the mean for employed people.

(d) Variance Partition Coefficient = σ^2country/(σ^2country + 3,29).

Appendix 7: Bivariate results for the metric variables, correlation matrix *(Study 2).*

Men (N = 11 789)					
Pearson Correlation	Depression	General health	Number GP consultations	Household wealth	Regional unemployment rate
Depression	1	0,402***	0,203***	-0,035***	0,133***
General health	0,402***	1	0,273***	-0,109***	0,200***
Number GP consultations	0,203***	0,273***	1	-0,045***	0,032***
Household wealth	-0,035***	-0,109***	-0,045***	1	-0,092**
Regional unemployment rate	0,133***	0,200***	0,032***	-0,092***	1
Women (N = 15,118)					
Depression	1	0,423***	0,224***	-0,067***	0,156***
General health	0,423***	1	0,294***	-0,141***	0,241***
Number GP consultations	0,224***	0,294***	1	-0,057***	0,062***
Household wealth	-0,067***	-0,141***	-0,057***	1	-0,094***
Regional unemployment rate	0,156***	0,241***	0,062***	-0,094***	1

* p < 0,050 ** p < 0,010 *** p < 0,001 (two-tailed)

Appendix 8: Bivariate results for the categorical and metric variables (compare means) *(Study 2).*

	Men										Women									
	Depression		General health		GP consultations		Household wealth		Regional unemployment		Depression		General health		GP consultations		Household wealth		Regional unemployment	
	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD	$\bar{x}$	SD
HED		***								*										***
yes	2,184	2,150	3,065	1,053	3,172	5,370	2,749	11,609	9,082	4,873	2,772	2,531	3,021	1,079	4,298	8,735	2,414	3,595	8,211	4,595
No	1,906	1,946	3,013	1,075	3,466	5,704	2,855	6,570	9,389	5,022	2,742	2,328	3,067	1,056	4,058	6,505	2,575	6,401	9,427	5,079
Psychiatrist		***		***		***		*				***		***		***		***		*
yes	4,543	2,585	3,943	0,921	6,838	7,561	1,799	3,182	9,720	5,470	5,358	2,699	3,919	0,930	7,269	9,068	1,657	2,635	9,871	5,500
no	1,887	1,925	3,002	1,068	3,374	5,613	2,863	7,293	9,351	4,999	2,650	2,265	3,035	1,048	3,951	6,443	2,603	6,429	9,376	5,053
Medication		***		***		***		*				***		***		***		***		***
yes	4,252	2,558	3,856	0,997	6,840	8,362	2,191	3,288	9,616	4,743	5,019	2,667	3,825	0,939	7,482	9,630	1,867	2,614	10,019	5,166
no	1,831	1,875	2,981	1,061	3,285	5,474	2,873	7,367	9,346	5,019	2,540	2,190	2,997	1,040	3,760	6,141	2,633	6,566	9,337	5,057
Employment status		***		***		***		***		***		***		***		***		***		***
Employed	1,621	1,679	2,714	0,982	2,610	4,684	3,355	6,199	9,155	5,045	2,410	2,117	2,777	0,993	2,985	4,734	2,973	5,405	9,191	4,967
Unemployed	2,557	2,215	3,269	1,038	3,258	6,052	1,525	5,669	11,381	5,902	3,539	2,597	3,305	1,036	4,726	7,674	1,538	3,718	11,263	5,870
x Displaced worker:		**		*																
yes	2,386	1,938	3,220	0,990	2,959	4,353	1,219	1,723	11,324	4,795	3,489	2,547	3,260	1,048	4,623	10,470	1,217	1,492	11,129	5,272
no	2,626	2,315	3,289	1,056	3,379	6,613	1,648	6,621	11,404	6,296	3,560	2,619	3,323	1,031	4,768	6,177	1,670	4,307	11,318	6,103
Retired	1,921	1,983	3,196	1,040	3,989	5,586	2,526	7,229	8,973	4,529	2,740	2,334	3,207	1,026	4,366	6,319	2,062	6,459	8,867	4,272
Disabled/Ill	3,643	2,521	4,180	0,828	7,256	9,523	1,400	4,689	10,764	5,345	4,420	2,599	4,161	0,871	7,876	10,253	1,340	2,578	10,658	5,227
Homemaker	2,238	2,132	3,079	1,143	3,143	4,762	4,991	6,415	8,835	4,254	2,790	2,380	3,088	1,012	4,864	8,522	3,365	19,446	9,987	6,209
Age		*		***		***		*				***		***		***				
50-54	1,958	1,976	2,831	1,082	2,893	5,187	2,613	4,944	9,421	5,146	2,741	2,358	2,926	1,073	3,718	5,779	2,505	4,751	9,452	5,152
55-59	1,990	2,008	3,048	1,072	3,354	5,596	2,751	5,687	9,417	4,937	2,856	2,398	3,095	1,057	4,090	6,935	2,612	5,368	9,453	5,101
60-65	1,876	1,934	3,103	1,056	3,811	5,961	3,049	9,171	9,275	4,981	2,655	2,262	3,133	1,037	4,273	6,770	2,581	7,794	9,306	4,989
Partner:		***		***		*		***				***		***		***		***		
yes	1,830	1,885	2,989	1,067	3,386	5,662	3,054	7,697	9,386	5,021	2,635	2,265	3,040	1,041	3,951	6,236	2,976	7,112	9,373	5,073
no	2,445	2,276	3,161	1,093	3,682	5,714	1,815	4,223	9,220	4,940	3,072	2,502	3,143	1,098	4,411	7,510	1,343	2,583	9,454	5,060
Degree of urbanisation				***				***		***								***		***
Large/medium city	1,912	1,977	2,973	1,070	3,358	5,272	2,450	4,751	9,642	5,311	2,701	2,355	3,042	1,063	3,950	6,541	2,157	3,554	9,689	5,420
Small city	1,885	1,960	2,998	1,084	3,552	5,839	2,754	8,060	10,029	5,774	2,789	2,368	3,086	1,049	4,174	6,893	2,565	7,567	10,091	5,719
Rural or village	1,989	1,968	3,080	1,066	3,442	5,959	3,319	8,680	8,616	3,924	2,760	2,284	3,077	1,054	4,123	6,394	3,056	7,746	8,565	3,932
Migratory status		***		***				*		***		***		***						***
yes	2,240	2,036	3,167	1,084	3,352	4,726	2,414	6,425	10,941	6,481	3,094	2,384	3,228	1,106	4,014	6,633	2,341	5,356	11,066	6,701
no	1,905	1,961	3,004	1,071	3,444	5,753	2,885	7,313	9,209	4,819	2,709	2,326	3,049	1,051	4,070	6,573	2,593	6,427	9,228	4,849
Education		***		***		***		***		***		***		***		***		***		***
Lower	2,185	2,108	3,296	1,059	3,968	6,629	1,914	4,136	10,652	5,654	3,162	2,554	3,324	1,022	5,136	8,064	1,873	5,862	10,028	5,530
Medium	1,895	1,944	3,017	1,060	3,425	5,569	2,530	6,975	8,864	4,700	2,626	2,252	3,055	1,039	3,752	5,870	2,412	6,647	9,096	4,935
Higher	1,693	1,796	2,671	1,012	2,786	4,332	4,634	10,004	8,687	4,378	2,318	2,006	2,683	1,024	3,005	4,832	3,957	6,232	8,979	4,447

* p < 0,050 ** p < 0,010 *** p < 0,001, One-way anova tests

Appendix 9: Bivariate results for the categorical variables (crosstabs) *(Study 2).*

		Men				Women			
		Psychiatrist		Medication		Psychiatrist		Medication	
		%	sig.	%	sig.	%	sig.	%	sig.
Heavy Episodic Drinker:	yes	1,3		3,1	*	3,3		8,2	
	no	1,8		4,4		3,4		8,2	
Employment status:	employed	0,8	***	2,1	***	2,2	***	5,1	***
	unemployed	2,3		4,0		4,4		9,8	
x **displaced worker:**	yes	0,8		1,7	*	4,8		10,0	
	no	2,8		5,0		3,5		9,8	
	Retired	1,5		4,8		3,2		8,2	
	Disabled/Ill	9,7		17,9		13,8		9,2	
	Homemaker	2,6		4,9		3,2		27,3	
Age:	50–54	1,8	*	4,1		4,4	***	9,0	***
	55–59	2,2		4,0		3,8		8,9	
	60–65	1,5		4,5		2,5		7,1	
Partner:	yes	1,5	***	3,8	***	3,0	***	7,5	***
	no	3,4		6,5		4,9		10,5	
Degree of urbanisation:	large/medium city	1,8		4,1		3,9	**	8,1	
	small city	2,0		4,4		3,7		9,0	
	rural or village	1,6		4,3		2,8		7,8	
Migratory status:	yes	1,9		4,0		4,1		7,2	
	no	1,8		4,3		3,4		8,3	
Education:	lower	2,0		5,3	***	3,9	*	10,8	***
	medium	1,7		3,6		3,2		7,1	
	higher	1,7		4,3		3,0		6,2	

Appendix 10: Extended Table 1_The relations between (un)employment and mental health indicators, varying between displaced workers versus non-displaced unemployed and across regional levels of unemployment men and women *(Study 3).*

	Depression									**Heavy episodic drinking**									**Depression**									**Heavy episodic drinking**					
	Model 1			Model 2			Model 3			Model 1		Model 2		Model 3					Model 1			Model 2			Model 3			Model 1		Model 2		Model 3	
	B	SE		B	SE		B	SE		OR		OR		OR					B	SE		B	SE		B	SE		OR		OR		OR	
Intercept	2,303	0,097	***	2,293	0,096	***	2,302	0,097	***	0,356	***	0,355	***	0,356	***				3,164	0,113	***	3,165	0,112	***	3,165	0,113	***	0,176	***	0,177	***	0,176	***
Age (ref. 50-54)																																	
55-59	-0,076	0,047		-0,076	0,046		-0,077	0,047		0,978		0,979		0,977					-0,018	0,048		-0,017	0,048		-0,018	0,048		0,921		0,921		0,923	
60-65	-0,255	0,053	***	-0,252	0,053	***	-0,254	0,053	***	0,893	*	0,894	*	0,893	*				-0,326	0,056	***	-0,325	0,056	***	-0,326	0,056	***	0,943		0,943		0,945	
partner (ref.no)	-0,441	0,046	***	-0,438	0,046	***	-0,439	0,046	***	0,862	***	0,862	***	0,864	***				-0,376	0,043	***	-0,376	0,043	***	-0,376	0,043	***	0,951		0,950		0,950	
Urbanissation (ref. Large/medium city)																																	
Small city	-0,078	0,046		-0,073	0,046		-0,076	0,046		1,024		1,024		1,026					-0,017	0,048		-0,017	0,048		-0,017	0,048		0,912		0,913		0,913	
Rural or village	-0,044	0,043		-0,041	0,043		-0,042	0,043		1,143	**	1,142	**	1,146	**				0,003	0,046		0,001	0,046		0,002	0,046		1,039		1,038		1,041	
Migratory status (ref. no)	0,110	0,064		0,102	0,064		0,110	0,064		0,935		0,934		0,934					0,279	0,066	***	0,268	0,066	***	0,279	0,066	***	0,876		0,876		0,877	
Education (ref. Lower)																																	
Medium	-0,221	0,044	***	-0,217	0,044	***	-0,222	0,044	***	0,942		0,943		0,940					-0,432	0,044	***	-0,431	0,044	***	-0,432	0,044	***	1,059		1,058		1,058	
Higher	-0,301	0,051	***	-0,300	0,051	***	-0,302	0,051	**	0,859	**	0,859	**	0,858	**				-0,669	0,054	***	-0,669	0,054	***	-0,669	0,054	***	1,152		1,151		1,151	
Household wealth_cen	0,002	0,002		0,002	0,002		0,002	0,002		1,002		1,002		1,002					-0,009	0,003	**	-0,009	0,003	**	-0,009	0,003	**	0,993		0,993		0,993	
Employment status (ref. employed)																																	
Unemployed	0,730	0,070	***	0,767	0,073	***	0,810	0,081	***	1,292	***	1,269	***	1,364	***				0,775	0,085	***	0,822	0,088	***	0,798	0,098	***	1,192		1,179		1,100	
*displaced							-0,281	0,142	*					0,812	*										-0,079	0,173						1,254	
Early' retired	0,390	0,048	***	0,398	0,048	***	0,388	0,048	***	1,133	**	1,133	**	1,132	**				0,457	0,055	***	0,469	0,055	***	0,457	0,055	***	0,949		0,943		0,949	
Disabled/ill	1,820	0,072	***	1,832	0,074	***	1,820	0,072	***	0,991		0,994		0,990					1,691	0,083	***	1,683	0,085	***	1,691	0,083	***	1,111		1,105		1,111	
Homemaker	0,582	0,137	***	0,578	0,138	***	0,581	0,137	***	0,793		0,775		0,793					0,313	0,061	***	0,309	0,061	***	0,313	0,061	***	1,013		0,998		1,012	
Regional unemployment	0,032	0,009	***	0,022	0,010	*	0,032	0,009	***	0,999		0,997		0,999					0,040	0,010	***	0,031	0,011	**	0,040	0,010	***	0,984		0,986		0,984	
*unemployed				-0,008	0,012							1,012										-0,015	0,015							1,007			
*'early' retired				0,036	0,008	***						1,004										0,036	0,010	***						0,996			
*disabled/ill				0,004	0,013							1,001										0,023	0,016							1,005			
*homemaker				-0,005	0,032							0,973										0,004	0,010							0,989			
Variance (3) Country	0,071	0,030	*	0,070	0,029	*	0,072	0,030	*	0,071		0,072		0,071					0,128	0,051	*	0,122	0,049	*	0,129	0,051	*	0,156		0,155		0,155	
(2) Region	0,032	0,011	**	0,031	0,011	**	0,032	0,011	**	0,148		0,148		0,151					0,040	0,013	**	0,039	0,013	**	0,040	0,013	**	0,545		0,545		0,548	
(1) Individual	3,404	0,044	***	3,397	0,044	***	3,402	0,044	***										4,848	0,056	***	4,842	0,056	***	4,848	0,056	***						
-2LL	47987875			47965170			47983921												66871532			66852743			66871323								

*p< 0,050 **p<0,010 ***p< 0,001.; N country=16; N region= 97

Appendix 11: Extended Table 2_Men_ The relations between (un)employment and (mental) health care and medication use. varying between displaced workers versus non-displaced unemployed and across regional levels of unemployment *(Study 2).*

Men	**Psychiatric consultations**				**Medication use**				**GP consultations**			
	Model 1	Model 2	Model 3	Model 4	Model 1	Model 2	Model 3	Model 4	Model 1	Model 2	Model 3	Model 4
	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR
Intercept	0,123 ***	0,106 ***	0,105 ***	0,106 ***	0,182 ***	0,152 ***	0,152 ***	0,152 ***	1,703 ***	1,631 ***	1,637 ***	1,631 ***
Age (ref. 50-54)												
55-59	0,984	1,016	1,013	1,014	0,869 *	0,901	0,900	0,900	1,041	1,025	1,024	1,025
60-65	0,770 *	0,838	0,834	0,837	0,819 **	0,897	0,898	0,898	1,060 *	1,071 **	1,071 **	1,071 **
partner (ref.no)	0,754 ***	0,831 *	0,828 *	0,832 *	0,861 **	0,959	0,960	0,960	0,990	1,022	1,021	1,022
Urbanissation (ref. Large/medium) city)												
Small city	1,049	1,036	1,027	1,040	1,024	1,035	1,036	1,038	0,995	1,001	0,999	1,001
Rural or village	0,938	0,926	0,923	0,929	1,031	1,039	1,041	1,039	0,978	0,970	0,969	0,970
Migratory status (ref. no)	0,949	0,896	0,888	0,895	0,895	0,846	0,843	0,843	1,023	0,985	0,983	0,985
Education (ref. Lower)												
Medium	1,008	1,061	1,062	1,060	0,957	1,013	1,011	1,011	0,969	1,015	1,014	1,015
Higher	1,209	1,267 *	1,266 *	1,266 *	1,091	1,157 *	1,154 *	1,155 *	0,901 ***	0,978	0,978	0,978
Household wealth_cen	0,986	0,991	0,990	0,991	0,982	0,986	0,986	0,986	0,997 **	0,998 *	0,998 *	0,998 *
Health indicators												
Depression		1,211 ***	1,210 ***	1,210 ***		1,230 ***	1,230 ***	1,230 ***		1,035 ***	1,035 ***	1,035 ***
Heavy episodic drinking (ref no)		0,759 *	0,763 *	0,755 *		0,763 **	0,765 **	0,759 **		0,944 *	0,945 *	0,945 *
General health										1,201 ***	1,202 ***	1,201 ***
Employment status												
Unemployed	1,607 ***	1,363 *	1,403 *	1,480 **	1,410 ***	1,184	1,196	1,282 *	1,073 *	0,984	0,995	0,980
*displaced				0,669				0,665 *				1,013
Early' retired	1,613 ***	1,417 **	1,433 **	1,418 **	1,718 ***	1,550 ***	1,544 ***	1,547 ***	1,184 ***	1,087 ***	1,085 ***	1,087 ***
Disabled/ill	3,707 ***	2,543 ***	2,533 ***	2,545 ***	3,384 ***	2,380 ***	2,381 ***	2,379 ***	1,629 ***	1,258 ***	1,251 ***	1,258 ***
Homemaker	1,758 **	1,532 *	1,359	1,534 *	1,552 **	1,327	1,207	1,327	1,066	0,948	0,948	0,948
Regional unemployment	0,999	0,988	0,970	0,989	1,002	0,994	0,998	0,994	1,004	1,001	1,003	1,001
*unemployed			0,974				0,986				0,989 *	
*'early' retired			1,035				0,999				0,994	
*disabled/ill			1,029				0,992				1,001	
*homemaker			0,930				0,920				0,998	
Variance (3) Country	0,040	0.020	0,010	0,017	0,237	0,328	0,326	0,323	0,045	0,042	0,041	0,042
(2) region	0,003	0.003	0,002	0,003	0,063	0,019	0,021	0,022	0,036	0,041	0,041	0,041
(1) individual												

*p< 0,050 **p< 0,010 ***p< 0,001; N country=16; N region= 97

Appendix 12: Extended Table 2_Women_ The relations between (un)employment and (mental) health care and medication use, varying between displaced workers versus non-displaced unemployed and across regional levels of unemployment (Study 2).

Women	**Psychiatric consultations**				**Medication use**				**GP consultations**			
	Model 1	Model 2	Model 3	Model 4	Model 1	Model 2	Model 3	Model 4	Model 1	Model 2	Model 3	Model 4
	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR	OR
Intercept	0,207 ***	0,159 ***	0,158 ***	0,159 ***	0,297 ***	0,237 ***	0,236 ***	0,237 ***	2,055 ***	1,913 ***	1,911 ***	1,913 ***
Age (ref. 50-54)												
55-59	0,839 **	0,850 **	0,851 **	0,850 **	0,917 *	0,930	0,930	0,931	1,014	1,013	1,013	1,013
60-65	0,612 ***	0,679 ***	0,679 ***	0,679 ***	0,720 ***	0,782 ***	0,782 ***	0,782 ***	0,994	1,029	1,029	1,029
partner (ref.no)	0,824 ***	0,902	0,904	0,902	0,874 ***	0,937	0,938	0,936	0,960 **	0,997	0,997	0,997
Urbanissation (ref. Large/medium city)												
Small city	0,935	0,923	0,923	0,923	1,008	1,012	1,011	1,013	0,988	0,985	0,985	0,985
Rural or village	0,848 **	0,832 **	0,836 **	0,832 **	0,958	0,959	0,960	0,959	1,001	0,991	0,992	0,991
Migratory status (ref. no)	1,045	0,986	0,990	0,986	0,919	0,874 *	0,877 *	0,875 *	1,063 *	1,015	1,016	1,015
Education (ref. Lower)												
Medium	0,937	1,064	1,065	1,064	0,902 **	0,986	0,986	0,986	0,907 ***	0,965 *	0,965 *	0,965 *
Higher	1,014	1,230 **	1,230 **	1,230 **	0,843 ***	0,974	0,974	0,974	0,846 ***	0,951 **	0,951 **	0,951 **
Household wealth_cen	0,974 *	0,984	0,985	0,984	0,975 ***	0,984 *	0,984 *	0,984 *	0,994 ***	0,997 **	0,997 **	0,997 **
Health indicators												
Depression		1,221 ***	1,221 ***	1,221 ***		1,204 ***	1,204 ***	1,204 ***		1,031 ***	1,030 ***	1,031 ***
Heavy episodic drinking (ref no)		0,870	0,872	0,871		0,932	0,932	0,932		1,035	1,034	1,035
General health										1,227 ***	1,226 ***	1,227 ***
Employment status												
Unemployed	1,366 **	1,146	1,170	1,166	1,278 ***	1,102	1,093	1,073	1,177 ***	1,060 *	1,065 *	1,063 *
*displaced				0,929				1,092				0,988
Early' retired	1,578 ***	1,378 ***	1,374 ***	1,378 ***	1,582 ***	1,434 ***	1,432 ***	1,434 ***	1,168 ***	1,062 ***	1,060 **	1,062 ***
Disabled/ill	2,826 ***	2,128 ***	2,148 ***	2,127 ***	2,652 ***	2,099 ***	2,102 ***	2,099 ***	1,530 ***	1,179 ***	1,178 ***	1,179 ***
Homemaker	1,396 ***	1,278 **	1,261 **	1,278 **	1,393 ***	1,307 ***	1,300 ***	1,307 ***	1,137 ***	1,048 *	1,048 *	1,048 *
Regional unemployment	0,999	0,984	0,990	0,984	1,013	1,002	1,003	1,002	1,016 ***	1,010 *	1,010 *	1,010 *
*unemployed			0,980				1,003				0,996	
*'early' retired			0,988				0,991				0,998	
*disabled/ill			0,984				0,995				1,001	
*homemaker			1,008				1,005				1,004	
Variance (3) Country	0,079	0,132	0,114	0,131	0,180	0,148	0,144	0,148	0,066	0,072	0,071	0,072
(2) Region	0,130	0,103	0,107	0,103	0,116	0,068	0,068	0,068	0,032	0,028	0,027	0,028
(1) Individual												

*p< 0,050 **p< 0,010 ***p< 0, 001 N country=16; N region= 97

Appendix 13: Pearson correlation matrix for the change variables of unemployment (total, male, female, youth) *(Study 3).*

		Change in unemployment rate 2005-2011					
		of men and women	of men	of women	of men and women <25 years old	of men <25 years old	of women <25 years old
Change in unemployment rate 2005-2011	of men and women	1,000	0,989***	0,938***	0,972***	0,980***	0,946***
	of men	0,989***	1,000	0,938***	0,972***	0,980***	0,946***
	of women	0,938***	0,938***	1,000	0,910***	0,903***	0,904***
	of men and women <25 years old	0,972***	0,972***	0,910***	1,000	0,997***	0,992***
	of men <25 years old	0,980***	0,980***	0,903***	0,997***	1,000	0,979***
	of women <25 years old	0,940***	0,946***	0,904***	0,992***	0,979***	1,000

* p < 0,050 ** p < 0,010 *** p < 0,001 (two-tailed)

Appendix 14: Pearson correlation matrix for the pre-crisis context variables of unemployment (total, male, female, youth) *(Study 3).*

		Unemployment rate for 2005					
				of women	of men and women <25 years old	of men <25 years old	of women <25 years old
Unemployment rate for 2005	of men and women	1,000	0,976***	0,930***	0,854***	0,886***	0,794***
	of men	0,976***	1,000	0,930***	0,854***	0,886***	0,794***
	of women	0,930***	0,930***	1,000	0,899***	0,887***	0,888***
	of men and women <25 years old	0,854***	0,854***	0,899***	1,000	0,988***	0,984***
	of men <25 years old	0,886***	0,886***	0,887***	0,988***	1,000	0,943***
	of women <25 years old	0,794***	0,794***	0,888***	0,984***	0,943***	1,000

* p < 0,050 ** p < 0,010 *** p < 0,001 (two-tailed)

Appendix 15.a: Jackknife analysis, the results of Model 4 of Table 3 for men, each time without one country (Part 1) *(Study 3).*

Without	Belgium			Bulgaria			Swizz			Cyprus			Germany			Denmark			Estonia			Spain			Finland			France		
	b	SE	sig,	b	SE	sig,	b	SE	sig,	b	SE	sig,	b	SE	sig,	b	SE	sig,	b	SE	sig,	b	SE	sig,	b	SE	sig,	b	SE	sig,
Intercept	7,245	0,662	***	7,215	0,690	***	7,269	0,662	***	7,711	0,686	***	7,455	0,676	***	7,240	0,664	***	7,173	0,679	***	7,364	0,665	***	7,249	0,659	***	7,251	0,661	***
Context variables																														
GDP	-0,046	0,013	***	-0,048	0,014	***	-0,047	0,013	***	-0,054	0,013	***	-0,049	0,013	***	-0,046	0,013	***	-0,045	0,013	***	-0,049	0,013	***	-0,045	0,013	***	-0,046	0,013	***
Unemployment rate	0,039	0,050		0,037	0,051		0,038	0,050		0,006	0,051		0,026	0,052		0,040	0,050		0,040	0,050		0,029	0,050		0,042	0,050		0,040	0,050	
Period variables																														
Period (ref, 2006)																														
2012	-0,567	0,088	***	-0,509	0,093	***	-0,547	0,097	***	-0,546	0,092	***	-0,607	0,090	***	-0,539	0,092	***	-0,547	0,093	***	-0,541	0,088	***	-0,543	0,094	***	-0,557	0,093	***
Change in GDP [c]	0,018	0,012		0,017	0,014		0,018	0,015		0,018	0,012		0,022	0,015		0,018	0,012		0,018	0,012		0,016	0,012		0,017	0,012		0,018	0,012	
Change in unemployment[c]	0,039	0,018	*	0,041	0,018	*	0,040	0,019	*	0,037	0,018	*	0,037	0,018	*	0,038	0,019	*	0,038	0,019	*	0,036	0,019		0,032	0,016	*	0,038	0,018	*
Individual variables																														
Age (ref. 35-49y)																														
20-34y	-0,732	0,064	***	-0,691	0,064	***	-0,730	0,064	***	-0,701	0,063	***	-0,685	0,065	***	-0,722	0,064	***	-0,685	0,063	***	-0,680	0,063	***	-0,697	0,064	***	-0,720	0,064	***
50-64y	-0,061	0,060		-0,129	0,062	*	-0,073	0,061		-0,063	0,060		-0,046	0,062		-0,046	0,061		-0,081	0,060		-0,017	0,060		-0,064	0,061		-0,059	0,060	
Employment status (ref. unemployed)																														
Non-employed	-0,548	0,107	***	-0,507	0,108	***	-0,552	0,106	***	-0,550	0,105	***	-0,608	0,112	***	-0,577	0,106	***	-0,573	0,105	***	-0,548	0,105	***	-0,610	0,108	***	-0,545	0,107	***
Employed	-1,598	0,101	***	-1,516	0,102	***	-1,571	0,100	***	-1,594	0,099	***	-1,708	0,106	***	-1,623	0,100	***	-1,608	0,099	***	-1,578	0,099	***	-1,668	0,102	***	-1,615	0,101	***
Type of contract (ref,unlimited)																														
x limited	0,504	0,089	***	0,509	0,087	***	0,499	0,092	***	0,504	0,089	***	0,512	0,087	***	0,499	0,090	***	0,497	0,090	***	0,507	0,091	***	0,509	0,089	***	0,510	0,090	***
x no contraxt	0,337	0,137	*	0,319	0,138	*	0,315	0,137	*	0,389	0,149	**	0,329	0,137	*	0,338	0,140	*	0,311	0,137	*	0,348	0,136	*	0,318	0,137	*	0,322	0,137	*
x self-employed	0,039	0,075		0,046	0,076		0,049	0,076		0,055	0,074		0,064	0,077		0,050	0,075		0,055	0,075		0,040	0,075		0,023	0,076		0,030	0,075	
Work hours (ref, fulltime)																														
x marginal part-time	-0,227	0,247		-0,147	0,245		-0,173	0,248		-0,156	0,240		0,004	0,260		-0,112	0,244		-0,119	0,239		-0,147	0,237		-0,166	0,243		-0,109	0,250	
x substantial part-time	0,344	0,133	*	0,222	0,112	*	0,253	0,127	*	0,321	0,129	*	0,315	0,137	*	0,316	0,131	*	0,305	0,130	*	0,320	0,129	*	0,323	0,134	*	0,362	0,132	**
Cross-level interactions																														
Non-employed x change in unemployment	0,021	0,019		0,016	0,019		0,021	0,019		0,022	0,019		0,024	0,020		0,021	0,019		0,018	0,019		0,030	0,023		0,026	0,020		0,021	0,019	
Employed x change in u nemployment	-0,006	0,016		-0,010	0,016		-0,009	0,016		-0,007	0,016		0,008	0,017		-0,007	0,016		-0,006	0,016		-0,023	0,020		-0,001	0,016		-0,006	0,016	
x marginal part-time x change in unemployment	0,098	0,049	*	0,085	0,043	*	0,092	0,045	*	0,092	0,045	*	0,075	0,040		0,094	0,045	*	0,094	0,045	*	0,118	0,059	*	0,093	0,045	*	0,087	0,047	
x substantial part-time x change in unemployment	0,036	0,032		0,040	0,032		0,043	0,032		0,042	0,032		0,038	0,034		0,042	0,033		0,037	0,032		0,059	0,035		0,037	0,033		0,035	0,032	
Variance (3) Country	0,320	0,109	**	0,322	0,111	**	0,317	0,109	**	0,279	0,096	**	0,304	0,104	**	0,319	0,110	**	0,314	0,108	**	0,313	0,107	**	0,311	0,107	**	0,316	0,109	**
(2) Period	0,011	0,010		0,012	0,011		0,015	0,012		0,014	0,011		0,009	0,010		0,014	0,011		0,016	0,012		0,012	0,011		0,015	0,012		0,014	0,011	
(1) Individual	12,493	0,116	***	12,386	0,117	***	12,602	0,117	***	12,503	0,115	***	12,633	0,120	***	12,661	0,117	***	12,429	0,116	***	12,368	0,115	***	12,730	0,119	***	12,425	0,116	***
ρ	0,026			0,026			0,026			0,023			0,024			0,026			0,026			0,026			0,025			0,026		
-2LL	124030009			119856973			124946245			127198138			120151682			125255051			124251189			123572695			123195776			123557962		

* p < ,050 ** p < ,010 *** p < ,001 ; N individual men = 24343 & women= 27336 ;N period (*country) = 40; N country = 20 All models controlled for education, education², marital status and income

Appendix 15.b: Jackknife analysis, the results of Model 4 of Table 3 for men, each time without one country (Part 2) *(Study 3).*

Without	UK			Hungary			Ireland			Netherland			Norway			Poland			Portugal			Sweden			Slovakia			Slovenia		
	b	SE	sig,	b	SE	sig,	b	SE	sig,	b	SE	sig,	b	SE	sig,	b	SE	sig,	b	SE	sig,	b	SE	sig,	b	SE	sig,	b	SE	sig,
Intercept	7,214	0,651	***	6,363	0,529	***	7,169	0,665	***	7,261	0,668	***	7,27	0,69	***	6,777	0,651	***	7,236	0,67	***	7,163	0,659	***	7,548	0,654	***	7,671	0,649	***
Context variables																														
GDP	-0,048	0,013	***	-0,030	0,010	**	-0,047	0,013	***	-0,047	0,013	***	-0,049	0,015	***	-0,044	0,012	***	-0,047	0,013	***	-0,045	0,013	***	-0,048	0,012	***	-0,054	0,012	***
Unemployment rate	0,044	0,049		0,087	0,038	*	0,041	0,05		0,037	0,051		0,035	0,051		0,091	0,055		0,037	0,050		0,043	0,050		0,001	0,053		0,010	0,048	
Period variables																														
Period (ref, 2006)																														
2012	-0,578	0,098	***	-0,521	0,090	***	-0,542	0,093	***	-0,562	0,091	***	-0,547	0,097	***	-0,477	0,098	***	-0,550	0,094	***	-0,551	0,093	***	-0,529	0,092	***	-0,487	0,074	***
Change in GDP [c]	0,022	0,013		0,016	0,012		0,018	0,012		0,018	0,012		0,019	0,015		0,012	0,012		0,018	0,012		0,017	0,012		0,017	0,012		0,015	0,010	
Change in unemployment[c]	0,039	0,018	*	0,038	0,018	*	0,045	0,022	*	0,041	0,018	*	0,040	0,019	*	0,030	0,012	*	0,033	0,014	*	0,039	0,019	*	0,034	0,017	*	0,034	0,017	*
Individual variables																														
Age (ref. 35-49y)																														
20-34y	-0,697	0,063	***	-0,662	0,063	***	-0,692	0,064	***	-0,694	0,064	***	-0,746	0,064	***	-0,656	0,063	***	-0,666	0,063	***	-0,729	0,064	***	-0,674	0,063	***	-0,715	0,063	***
50-64y	-0,019	0,060		-0,081	0,059		-0,014	0,06		-0,031	0,061		-0,061	0,061		-0,111	0,060		-0,069	0,060		-0,049	0,061		-0,073	0,060		-0,074	0,060	
Employment status (ref. unemployed)																														
Non-employed	-0,622	0,106	***	-0,589	0,105	***	-0,556	0,104	***	-0,567	0,107	***	-0,538	0,106	***	-0,528	0,110	***	-0,518	0,106	***	-0,539	0,107	***	-0,562	0,107	***	-0,564	0,106	***
Employed	-1,598	0,100	***	-1,618	0,099	***	-1,587	0,099	***	-1,564	0,101	***	-1,557	0,100	***	-1,576	0,103	***	-1,591	0,101	***	-1,580	0,101	***	-1,637	0,101	***	-1,596	0,100	***
Type of contract (ref,unlimited)																														
x limited	0,509	0,097	***	0,522	0,092	***	0,489	0,085	***	0,507	0,091	***	0,506	0,096	***	0,509	0,089	***	0,502	0,087	***	0,509	0,087	***	0,503	0,090	***	0,507	0,087	***
x no contraxt	0,291	0,143	*	0,324	0,134	*	0,425	0,15	*	0,283	0,137	*	0,336	0,141	*	0,310	0,136	*	0,248	0,129		0,360	0,137	**	0,300	0,136	*	0,330	0,137	*
x self-employed	0,055	0,075		0,073	0,074		0,047	0,075		0,027	0,075		0,058	0,076		0,051	0,075		0,078	0,075		0,064	0,076		0,085	0,075		0,047	0,075	
Work hours (ref, fulltime)																														
x marginal part-time	-0,189	0,247		-0,158	0,235		-0,198	0,239		-0,179	0,249		-0,189	0,249		-0,164	0,242		-0,101	0,242		-0,268	0,242		-0,141	0,240		-0,166	0,239	
x substantial part-time	0,265	0,130	*	0,294	0,128	*	0,306	0,13	*	0,294	0,139	*	0,324	0,136	*	0,301	0,131	*	0,319	0,129	*	0,316	0,133	*	0,318	0,129	*	0,298	0,130	*
Cross-level interactions																														
Non-employed x change in unemployment	0,022	0,019		0,024	0,019		0,013	0,025		0,021	0,019		0,020	0,020		0,020	0,018		0,021	0,019		0,021	0,019		0,021	0,019		0,021	0,019	
Employed x change in u nemployment	-0,007	0,016		-0,005	0,016		-0,012	0,021		-0,009	0,016		-0,009	0,016		-0,009	0,017		-0,001	0,016		-0,007	0,016		-0,002	0,016		-0,005	0,016	
x marginal part-time x change in unemployment	0,086	0,040	*	0,089	0,044	*	0,072	0,038		0,093	0,045	*	0,094	0,046	*	0,090	0,049		0,096	0,046	*	0,100	0,050	*	0,092	0,045	*	0,089	0,045	*
x substantial part-time x change in unemployment	0,041	0,032		0,028	0,032		0,029	0,05		0,039	0,032		0,035	0,033		0,033	0,034		0,037	0,032		0,037	0,032		0,038	0,032		0,034	0,032	
Variance (3) Country	0,301	0,104	**	0,305	0,106	**	0,318	0,109	**	0,319	0,109	**	0,317	0,109	**	0,264	0,091	**	0,318	0,109	**	0,309	0,107	**	0,286	0,099	**	0,267	0,091	**
(2) Period	0,015	0,011		0,013	0,011		0,015	0,012		0,013	0,011		0,015	0,012		0,012	0,011		0,015	0,012		0,015	0,012		0,014	0,011		0,002	0,007	
(1) Individual	12,356	0,115	***	12,203	0,113	***	12,341	0,115	***	12,573	0,117	***	12,712	0,119	***	12,317	0,115	***	12,441	0,115	***	12,577	0,117	***	12,467	0,116	***	12,578	0,116	***
ρ	0,025			0,025			0,026			0,026			0,025			0,022			0,026			0,025			0,023			0,021		
-2LL	123006243			124.346.198			122797208			124065654			123997018			123474256			124712333			123558879			124339919			126218654		

*** p < 0,050 ** p < 0,010 *** p < 0,001 ; N period (*country) = 38; N country = 19**

All models controlled for education, education², marital status and income

Appendix 15.c: Jackknife analysis, the results of Model 4 of Table 3 for women, each time without one country (Part 1) *(Study 3)*

Without	Belgium			Bulgaria			Swizz			Cyprus			Germany			Denmark			Estonia			Spain			Finland			France		
	b	SE	sig	b	SE	sig	b	SE	sig	b	SE	sig	b	SE	sig	b	SE	sig	b	SE	sig	b	SE	sig	b	SE	sig	b	SE	sig
Intercept	6,306	0,403	***	6,278	0,409	***	6,298	0,405	***	6,420	0,441	***	6,380	0,409	***	6,286	0,410	***	6,348	0,406	***	6,423	0,411	***	6,295	0,386	***	6,319	0,405	***
Context variables																														
GDP	-0,054	0,012	***	-0,052	0,013	***	-0,053	0,012	***	-0,056	0,013	***	-0,056	0,012	***	-0,053	0,012	***	-0,056	0,012	***	-0,054	0,012	***	-0,050	0,011	***	-0,054	0,012	***
Unemployment rate	0,028	0,046		0,031	0,047		0,031	0,046		0,020	0,050		0,018	0,048		0,030	0,047		0,026	0,046		0,019	0,047		0,038	0,044		0,029	0,047	
Period variables																														
Period (ref, 2006)																														
2012	-0,571	0,145	***	-0,528	0,138	***	-0,534	0,149	***	-0,617	0,129	***	-0,671	0,138	***	-0,571	0,141	***	-0,573	0,142	***	-0,556	0,135	***	-0,564	0,144	***	-0,573	0,145	***
Change in GDP [c]	0,028	0,019		0,025	0,018		0,016	0,024		0,030	0,017		0,035	0,017	*	0,026	0,019		0,029	0,019		0,023	0,018		0,027	0,019		0,028	0,019	
Change in unemployment[c]	0,045	0,027		0,044	0,026		0,043	0,027		0,042	0,025		0,061	0,026	*	0,043	0,026		0,049	0,026		0,047	0,032		0,043	0,027		0,045	0,026	
Individual variables																														
Age (ref. 35-49y)																														
20-34y	-0,632	0,066	***	-0,584	0,066	***	-0,647	0,067	***	-0,596	0,066	***	-0,610	0,067	***	-0,592	0,066	***	-0,610	0,067	***	-0,588	0,066	***	-0,610	0,067	***	-0,577	0,067	***
50-64y	0,115	0,060	*	0,090	0,062		0,111	0,062		0,132	0,061	*	0,128	0,063	*	0,136	0,062	*	0,125	0,062	*	0,130	0,062	*	0,126	0,063	*	0,141	0,062	*
Employment status (ref. unemployed)																														
Non-employed	-0,555	0,109	***	-0,565	0,108		-0,521	0,107	***	-0,540	0,106	***	-0,522	0,112	***	-0,551	0,107	***	-0,553	0,107	***	-0,577	0,106	***	-0,573	0,109	***	-0,565	0,108	***
Employed	-1,074	0,111	***	-1,065	0,111	***	-1,097	0,109	***	-1,072	0,108	***	-1,084	0,114	***	-1,051	0,109	***	-1,106	0,110	***	-1,112	0,108	***	-1,088	0,112	***	-1,084	0,111	***
Type of contract (ref,unlimited)																														
x limited	0,408	0,098	***	0,415	0,098	***	0,455	0,098	***	0,409	0,097	***	0,410	0,099	***	0,403	0,098	***	0,434	0,099	***	0,432	0,099	***	0,432	0,101	***	0,423	0,098	***
x no contraxt	-0,014	0,155		0,011	0,154		-0,007	0,156		0,048	0,170		-0,074	0,156		-0,021	0,156		-0,002	0,155		-0,006	0,156		0,002	0,155		0,007	0,155	
x self-employed	-0,200	0,116		-0,281	0,114	*	-0,247	0,116	*	-0,230	0,115	*	-0,229	0,117	*	-0,255	0,115	*	-0,216	0,106	*	-0,253	0,117	*	-0,258	0,117	*	-0,258	0,115	*
Work hours (ref, fulltime)																														
x marginal part-time	-0,099	0,142		-0,134	0,136		-0,134	0,144		-0,146	0,137		-0,118	0,148		-0,139	0,138		-0,079	0,138		-0,129	0,137		-0,142	0,139		-0,171	0,140	
x substantial part-time	0,022	0,087		0,035	0,084		0,090	0,087		0,032	0,084		0,008	0,091		0,044	0,087		0,023	0,085		0,024	0,084		-0,011	0,087		0,013	0,086	
Cross-level interactions																														
Non-employed x change in unemployment	0,001	0,021		0,001	0,021		-0,002	0,021		0,001	0,021		-0,005	0,022		0,001	0,021		0,001	0,021		-0,022	0,025		0,002	0,021		0,001	0,021	
Employed x change in u nemployment	-0,014	0,021		-0,012	0,021		-0,013	0,021		-0,014	0,021		-0,014	0,022		-0,012	0,021		-0,017	0,021		-0,037	0,026		-0,012	0,021		-0,014	0,021	
x marginal part-time x change in unemployment	0,058	0,024	*	0,059	0,030	*	0,060	0,030	*	0,056	0,030		0,063	0,031	*	0,056	0,027	*	0,064	0,032	*	0,086	0,036	*	0,060	0,030	*	0,062	0,031	*
x substantial part-time x change in unemployment	0,014	0,021		0,011	0,020		0,007	0,021		0,014	0,021		0,022	0,022		0,011	0,021		0,013	0,021		-0,002	0,024		0,014	0,021		0,013	0,020	
Variance (3) Country	0,234	0,091	*	0,241	0,092	**	0,234	0,091	*	0,245	0,091		0,232	0,088	**	0,238	0,092	*	0,231	0,090	**	0,242	0,092	**	0,206	0,083	*	0,237	0,092	*
(2) Period	0,065	0,029	*	0,056	0,026	*	0,063	0,028	*	0,048	0,023	*	0,049	0,024	*	0,063	0,028	*	0,063	0,028	*	0,055	0,025	*	0,065	0,029	*	0,065	0,029	*
(1) Individual	15,374	0,135	***	15,183	0,133	***	15,547	0,136	***	15,345	0,133	***	15,475	0,138	***	15,547	0,136	***	15,492	0,136	***	15,286	0,134	***	15,622	0,137	***	15,209	0,134	***
ρ	0,019			0,019			0,019			0,019			0,018			0,019			0,019			0,019			0,017			0,019		
-2LL	145076701			144215666			145964076			147652021			141287670			146746812			144509817			145025550			145021131			143801647		

* p < 0,050 ** p < 0,010 *** p < 0,001 ; N period (*country) = 38; N country = 19

All models controlled for education, education², marital status and income

Appendix15.c: Jackknife analysis, the results of Model 4 of Table 3 for women, each time without one country (Part 2) *(Study 3)*.

Without	UK			Hungary			Ireland			Netherland			Norway			Poland			Portugal			Sweden			Slovakia			Slovenia		
	b	SE	sig	b	SE	sig	b	SE	sig	b	SE	sig	b	SE	sig	b	SE		b	SE	sig	b	SE	sig	b	SE	sig	b	SE	sig
Intercept	6,192	0,392	***	5,962	0,350	***	6,293	0,408	***	6,324	0,414	***	6,289	0,407	***	6,103	0,438	***	6,267	0,406	***	6,306	0,403	***	6,383	0,431	***	6,676	0,348	***
Context variables																														
GDP	-0,054	0,011	***	-0,040	0,010	***	-0,051	0,012	***	-0,054	0,012	***	-0,054	0,014	***	-0,052	0,012	***	-0,052	0,012	***	-0,054	0,012	***	-0,054	0,012	***	-0,064	0,010	***
Unemployment rate	0,039	0,045		0,070	0,039		0,032	0,047		0,030	0,047		0,029	0,047		0,058	0,054		0,032	0,046		0,028	0,046		0,017	0,052		-0,011	0,039	
Period variables																														
Period (ref, 2006)																														
2012	-0,625	0,151	***	-0,567	0,142	***	-0,562	0,144	***	-0,609	0,140	***	-0,609	0,144	***	-0,539	0,159	***	-0,514	0,128	***	-0,571	0,145	***	-0,557	0,145	***	-0,521	0,132	***
Change in GDP [c]	0,035	0,020		0,026	0,018		0,026	0,019		0,029	0,018		0,040	0,022		0,025	0,020		0,025	0,017		0,028	0,019		0,027	0,019		0,026	0,017	
Change in unemployment[c]	0,049	0,026		0,044	0,026		0,031	0,031		0,047	0,026		0,050	0,026		0,041	0,029		0,048	0,025		0,045	0,027		0,041	0,027		0,040	0,025	
Individual variables																														
Age (ref. 35-49y)																														
20-34y	-0,614	0,067	***	-0,578	0,066	***	-0,633	0,067	***	-0,580	0,067	***	-0,611	0,067	***	-0,572	0,066	***	-0,559	0,066	***	-0,632	0,066	***	-0,553	0,067	***	-0,618	0,066	***
50-64y	0,167	0,062	**	0,124	0,062	*	0,145	0,063	*	0,157	0,063	*	0,150	0,063	*	0,100	0,061		0,126	0,062	*	0,115	0,062		0,122	0,062	*	0,123	0,062	*
Employment status (ref. unemployed)																														
Non-employed	-0,548	0,107	***	-0,582	0,106	***	-0,535	0,106	***	-0,584	0,108	***	-0,533	0,107	***	-0,545	0,111	***	-0,555	0,109	***	-0,555	0,109	***	-0,555	0,110	***	-0,513	0,107	***
Employed	-1,071	0,109	***	-1,123	0,109	***	-1,081	0,109	***	-1,100	0,110	***	-1,049	0,110	***	-1,073	0,113	***	-1,089	0,112	***	-1,074	0,111	***	-1,116	0,112	***	-1,075	0,110	***
Type of contract (ref,unlimited)																														
x limited	0,453	0,099	***	0,388	0,098	***	0,449	0,099	***	0,424	0,099	***	0,396	0,099	***	0,470	0,099	***	0,396	0,099	***	0,408	0,098	***	0,403	0,099	***	0,415	0,098	***
x no contraxt	0,048	0,161		-0,011	0,153		-0,001	0,170		-0,015	0,156		-0,013	0,157		-0,005	0,153		0,027	0,160		-0,014	0,155		0,022	0,154		0,012	0,154	
x self-employed	-0,218	0,106	*	-0,255	0,114	*	-0,242	0,115	*	-0,246	0,116	*	-0,264	0,116	*	-0,224	0,112	*	-0,253	0,118	*	-0,200	0,106		-0,172	0,117		-0,265	0,115	*
Work hours (ref, fulltime)																														
x marginal part-time	-0,151	0,145		-0,073	0,136		-0,119	0,139		-0,001	0,145		-0,134	0,143		-0,129	0,138		-0,086	0,137		-0,099	0,142		-0,112	0,137		-0,105	0,137	
x substantial part-time	0,061	0,087		0,055	0,084		0,027	0,085		0,086	0,088		0,014	0,087		0,057	0,085		0,058	0,084		0,022	0,087		0,056	0,085		0,039	0,084	
Cross-level interactions																														
Non-employed x change in unemployment	0,001	0,021		0,001	0,021		0,030	0,026		0,002	0,021		-0,002	0,021		-0,001	0,022		0,000	0,021		0,001	0,021		0,001	0,021		0,001	0,021	
Employed x change in u nemployment	-0,014	0,021		-0,010	0,021		0,005	0,025		-0,013	0,021		-0,015	0,021		-0,015	0,022		-0,017	0,021		-0,014	0,021		-0,010	0,021		-0,013	0,021	
x marginal part-time x change in unemployment	0,058	0,029	*	0,057	0,028	*	0,052	0,026	*	0,052	0029		0,061	0,031	*	0,070	0,033	*	0,067	0,032	*	0,058	0,030		0,061	0,030	*	0,058	0,029	*
x substantial part-time x change in unemployment	0,014	0,021		0,013	0,021		0,032	0,028		0,009	0,021		0,013	0,021		0,005	0,021		0,014	0,020		0,014	0,021		0,010	0,021		0,011	0,021	
Variance (3) Country	0,207	0,083	*	0,128	0,058	*	0,233	0,091	*	0,240	0,092	**	0,244	0,093	**	0,221	0,087	*	0,247	0,092	**	0,234	0,091	*	0,234	0,091	*	0,134	0,057	*
(2) Period	0,064	0,028	*	0,065	0,029	*	0,066	0,029	*	0,058	0,027	*	0,060	0,027	*	0,065	0,029	*	0,046	0,022	*	0,065	0,029	*	0,064	0,028	*	0,052	0,024	*
(1) Individual	15,284	0,135	***	15,229	0,134	***	15,482	0,137	***	15,505	0,136	***	15,660	0,137	***	15,088	0,132	***	15,247	0,135	***	15,374	0,135	***	15,488	0,136	***	15,486	0,135	***
ρ	0,017			0,013			0,019			0,019			0,019			0,019			0,019			0,019			0,019			0,012		
-2LL	142584441			144877509			143484754			144782449			146353598			144481927			142.814.148			145076701			144750151			147049530		

* p < 0,050 ** p < 0,010 *** p < 0,001 ; N period (*country) = 38; N country = 19

All models controlled for education, education², marital status and income

Appendix 15.e: Jackknife analysis, the results of Model 3 of Table 4 for men, each time without one country (Part 1) *(Study 3).*

Without	Belgium			Bulgaria			Swizz			Cyprus			Germany			Denmark			Estonia			Spain			Finland			France		
	b	SE	sig	b	SE	sig	b	SE	sig	b	SE	sig	b	SE	sig	b	SE	sig	b	SE	sig	b	SE	sig	b	SE	sig	b	SE	sig
Intercept	5,673	0,627	***	5,666	0,651	***	5,710	0,627	***	6,104	0,655	***	5,787	0,640	***	5,654	0,628	***	5,608	0,647	***	5,815	0,626	***	5,609	0,627	***	5,659	0,626	***
Period variables																														
Period (ref, 2006)	-0,549	0,090	***	-0,488	0,085	***	-0,537	0,097	***	-0,535	0,091	***	-0,594	0,091	***	-0,530	0,092	***	-0,535	0,093	***	-0,532	0,089	***	-0,530	0,094	***	-0,549	0,092	***
2012																														
Change in GDP	0,017	0,012		0,014	0,011		0,017	0,015		0,017	0,012		0,021	0,011		0,017	0,012		0,017	0,012		0,015	0,012		0,016	0,012		0,017	0,012	
Change in unemployment	0,040	0,013	**	0,038	0,012	**	0,038	0,014	**	0,038	0,014	**	0,051	0,014	***	0,039	0,014	***	0,039	0,014	**	0,036	0,016	*	0,039	0,014	**	0,040	0,013	**
Individual variables																														
Age (ref. 35-49y)																														
20-34y	-0,527	0,063	***	-0,446	0,062	***	-0,518	0,064	***	-0,486	0,063	***	-0,487	0,064	***	-0,511	0,063	***	-0,477	0,063	***	-0,478	0,063	***	-0,480	0,064	***	-0,500	0,063	***
50-64y	-0,048	0,061		-0,083	0,060		-0,076	0,062		-0,042	0,060		-0,018	0,063		-0,022	0,061		-0,053	0,061		-0,009	0,061		-0,051	0,062		-0,054	0,061	
Employment status																														
Unemployed (ref, no job seeking)	2,242	0,168	***	2,069	0,169	***	2,156	0,168	***	2,158	0,165	***	2,259	0,178	***	2,166	0,165	***	2,150	0,164	***	2,250	0,165	***	2,306	0,172	***	2,157	0,166	***
x seeking for job	-0,997	0,191	***	-0,853	0,193	***	-0,887	0,191	***	-0,895	0,188	***	-0,870	0,203	***	-0,867	0,189	***	-0,874	0,187	***	-1,038	0,188	***	-0,981	0,195	***	-0,878	0,190	***
Non-employed (ref, retired)	0,531	0,095	***	0,468	0,094	***	0,543	0,096	***	0,498	0,094	***	0,534	0,099	***	0,493	0,095	***	0,465	0,094	***	0,505	0,093	***	0,522	0,098	***	0,593	0,096	***
x student	-0,593	0,151	***	-0,583	0,148	***	-0,658	0,152	***	-0,606	0,149	***	-0,567	0,160	***	-0,640	0,152	***	-0,561	0,150	***	-0,605	0,149	***	-0,686	0,155	***	-0,721	0,151	***
x homework	0,124	0,213		0,253	0,213		0,103	0,211		0,180	0,208		0,217	0,220		0,186	0,214		0,204	0,207		0,162	0,205		0,154	0,210		0,063	0,210	
x sick/disabled	3,288	0,160	***	3,329	0,155	***	3,196	0,158	***	3,304	0,154	***	3,230	0,163	***	3,267	0,156	***	3,350	0,156	***	3,260	0,154	***	3,285	0,158	***	3,164	0,158	***
Cross-level interactions																														
unemployed x change in unemployment	-0,092	0,032	**	-0,084	0,031	**	-0,081	0,032	**	-0,088	0,032	**	-0,098	0,034	**	-0,085	0,032	**	-0,092	0,031	**	-0,090	0,037	*	-0,095	0,032	**	-0,086	0,031	**
x seeking for job x change in unemployment	0,125	0,035	***	0,115	0,034	***	0,107	0,035	***	0,118	0,034	***	0,113	0,037	**	0,114	0,035	***	0,123	0,034	***	0,139	0,041	***	0,121	0,035	***	0,115	0,034	*
non-employed x change in unemployment	-0,038	0,021		-0,040	0,021		-0,034	0,021		-0,034	0,021		-0,046	0,023	*	-0,036	0,021		-0,043	0,021	*	-0,014	0,024		-0,036	0,021		-0,038	0,021	
x student x change in unemployment	0,070	0,030	*	0,069	0,030	*	0,069	0,030	*	0,067	0,030	*	0,068	0,032	*	0,065	0,030	*	0,077	0,030	*	0,067	0,034	*	0,072	0,030	*	0,072	0,030	*
x homework x change in unemployment	0,155	0,054	**	0,154	0,054	**	0,151	0,055	**	0,148	0,054	**	0,148	0,058	*	0,154	0,055	**	0,159	0,055	**	0,152	0,062	*	0,152	0,055	**	0,156	0,054	**
x sick/disabled x change in unemployment	0,075	0,036	*	0,076	0,035	*	0,080	0,036	*	0,078	0,036	*	0,086	0,038	*	0,078	0,036	*	0,079	0,036	*	0,069	0,031	*	0,074	0,036	*	0,079	0,035	*
Variance (3) Country	0,290	0,100	**	0,293	0,100	**	0,288	0,099	**	0,257	0,089	**	0,276	0,095	**	0,289	0,100	**	0,288	0,099	**	0,280	0,096	**	0,286	0,099	**	0,288	0,099	**
(2) Period	0,013	0,011		0,010	0,009		0,015	0,012		0,015	0,011		0,010	0,010		0,015	0,011		0,016	0,012		0,014	0,011		0,015	0,012		0,014	0,011	
(1) Individual	12,167	0,113	***	11,953	0,111	***	12,235	0,114	***	12,167	0,112	***	12,308	0,117	***	12,326	0,114	***	12,093	0,112	***	12,045	0,112	***	12,385	0,116	***	12,111	0,113	***
ρ	0,024			0,025			0,024			0,022			0,023			0,024			0,025			0,024			0,024			0,024		
-2LL	123419404			124306128			122464356			126550278			119568843			124629683			123615325			122961581			122566265			122965793		

* p < 0,050 ** p < 0,010 *** p < 0,001 ; N period (*country) = 38; N country = 19

All models controlled for education, education², marital status, income and macroeconomic context variables (unemployment rate and GDP)

Appendix 3..f: Jackknife analysis, the results of model 3 of table 4 for men, each time without one country (Part 2) *(Study 3).*

Without	UK			Hungary			Ireland			Netherland			Norway			Poland			Portugal			Sweden			Slovakia			Slovenia		
	b	SE	sig	b	SE	sig	b	SE	sig	b	SE	sig	b	SE	sig	b	SE	sig	b	SE	sig	b	SE	sig	b	SE	sig	b	SE	sig
Intercept	5,656	0,623	***	4,806	0,492	***	5,612	0,630	***	5,717	0,634	***	5,756	0,653	***	5,250	0,618	***	5,643	0,635	***	5,625	0,623	***	5,921	0,622	***	6,054	0,623	***
Period variables																														
Period (ref, 2006)	-0,584	0,093	***	-0,517	0,091	***	-0,533	0,093	***	-0,545	0,092	***	-0,537	0,096	***	-0,464	0,098	***	-0,537	0,093	***	-0,542	0,092	***	-0,520	0,092	***	-0,471	0,072	***
2012																														
Change in GDP	0,023	0,012		0,015	0,012		0,016	0,012		0,017	0,012		0,019	0,015		0,011	0,012		0,017	0,012		0,016	0,012		0,015	0,012		0,014	0,010	
Change in unemployment	0,040	0,013	**	0,041	0,013	**	0,039	0,015	**	0,039	0,014	**	0,039	0,014	**	0,026	0,013	*	0,040	0,014	**	0,039	0,014	**	0,038	0,014	**	0,037	0,011	**
Individual variables																														
Age (ref. 35-49y)																														
20-34y	-0,498	0,063	***	-0,460	0,062	***	-0,484	0,063	***	-0,489	0,064	***	-0,539	0,064	***	-0,439	0,063	***	-0,454	0,063	***	-0,531	0,064	***	-0,463	0,063	***	-0,502	0,063	***
50-64y	-0,012	0,061		-0,056	0,060		0,007	0,061		-0,008	0,061		-0,035	0,062		-0,083	0,060		-0,044	0,060		-0,021	0,061		-0,044	0,061		-0,049	0,061	
Employment status																														
Unemployed (ref, no job seeking)	2,163	0,166	***	2,058	0,165	***	2,101	0,163	***	2,072	0,168	***	2,072	0,166	***	2,076	0,170	***	2,211	0,167	***	2,125	0,167	***	2,161	0,167	***	2,131	0,167	***
x seeking for job	-0,911	0,189	***	-0,734	0,189	***	-0,830	0,186	***	-0,803	0,191	***	-0,818	0,189	***	-0,811	0,195	***	-0,969	0,191	***	-0,871	0,191	***	-0,853	0,192	***	-0,854	0,190	***
Non-employed (ref, retired)	0,508	0,095	***	0,457	0,095	***	0,481	0,094	***	0,487	0,095	***	0,461	0,095	***	0,416	0,099	***	0,490	0,095	***	0,482	0,094	***	0,493	0,096	***	0,449	0,095	***
x student	-0,604	0,150	***	-0,534	0,149	***	-0,598	0,149	***	-0,582	0,151	***	-0,570	0,153	***	-0,509	0,154	***	-0,573	0,151	***	-0,536	0,153	***	-0,542	0,152	***	-0,560	0,152	***
x homework	0,078	0,209		0,174	0,208		0,240	0,208		0,150	0,218		0,188	0,212		0,310	0,213		0,179	0,207		0,182	0,209		0,192	0,217		0,206	0,214	
x sick/disabled	3,204	0,160	***	3,303	0,156	***	3,337	0,155	***	3,299	0,161	***	3,344	0,159	***	3,419	0,158	***	3,341	0,155	***	3,259	0,157	***	3,327	0,157	***	3,314	0,156	***
Cross-level interactions																														
unemployed x change in unemployment	-0,083	0,031	**	-0,084	0,031	**	-0,071	0,043		-0,078	0,032	*	-0,080	0,032	*	-0,072	0,033	*	-0,094	0,032	**	-0,084	0,032	**	-0,086	0,032	**	-0,089	0,032	**
x seeking for job x change in unemployment	0,114	0,034	**	0,111	0,034	**	0,084	0,042	*	0,109	0,035	**	0,110	0,035	**	0,104	0,036	**	0,120	0,035	***	0,115	0,035	**	0,111	0,035	**	0,117	0,035	***
non-employed x change in unemployment	-0,029	0,021		-0,038	0,021		-0,037	0,025		-0,036	0,021		-0,034	0,021		-0,031	0,024		-0,033	0,021		-0,035	0,021		-0,036	0,021		-0,035	0,021	
x student x change in unemployment	0,060	0,030	*	0,072	0,030	*	0,071	0,036	*	0,070	0,030	*	0,070	0,031	*	0,064	0,033		0,076	0,030	*	0,065	0,030	*	0,061	0,030	*	0,066	0,030	*
x homework x change in unemployment	0,140	0,054	**	0,151	0,054	**	0,179	0,068	**	0,154	0,055	*	0,151	0,055	**	0,102	0,052	*	0,157	0,054	**	0,151	0,054	**	0,145	0,055	**	0,152	0,055	**
x sick/disabled x change in unemployment	0,068	0,034	*	0,081	0,035	*	0,110	0,047	*	0,076	0,036	*	0,068	0,035	*	0,034	0,017	*	0,080	0,035	*	0,076	0,036	*	0,069	0,035	*	0,074	0,036	*
Variance (3) Country	0,282	0,097	**	0,135	0,050	**	0,288	0,100	**	0,290	0,100	**	0,287	0,099	**	0,241	0,084	**	0,288	0,100	**	0,280	0,097	**	0,261	0,091	**	0,251	0,085	**
(2) Period	0,012	0,010		0,014	0,011		0,015	0,012		0,014	0,011		0,015	0,012		0,013	0,011		0,016	0,012		0,015	0,012		0,014	0,011		0,002	0,007	
(1) Individual	12,061	0,113	***	11,886	0,110	***	12,012	0,112	***	12,254	0,114	***	12,378	0,115	***	11,975	0,112	***	12,092	0,112	***	12,259	0,114	***	12,135	0,113	***	12,247	0,113	***
ρ	0,024			0,012			0,025			0,024			0,024			0,021			0,025			0,023			0,022			0,020		
-2LL	122448342			123732205			122175480			123471160			123383719			122824028			124050256			122968313			123714149			125589722		

* p < 0,050 ** p < 0,010 *** p < 0,001 ; N period (*country) = 38; N country = 19

All models controlled for education, education², marital status, income and macroeconomic context variables (unemployment rate and GDP)

Appendix 15.g: Jackknife analysis, the results of Model 3 of Table 4 for women, each time without one country (Part 1) *(Study 3).*

Without	Belgium			Bulgaria			Swizz			Cyprus			Germany			Denmark			Estonia			Spain			Finland			France		
	b	SE	sig,	b	SE	sig,	b	SE	sig,	b	SE	sig,	b	SE	sig,	b	SE	sig,	b	SE	sig,	b	SE	sig,	b	SE	sig,	b	SE	sig,
Intercept	6,588	0,581	***	6,525	0,604	***	6,526	0,578	***	6,704	0,639	***	6,707	0,589	***	6,551	0,582	***	6,767	0,618	***	6,664	0,591	***	6,462	0,555	***	6,564	0,583	***
Period variables																														
Period (ref, 2006)																														
2012	-0,579	0,137	***	-0,549	0,132	***	-0,539	0,141	***	-0,626	0,124	***	-0,679	0,132	***	-0,589	0,133	***	-0,574	0,132	***	-0,571	0,128	***	-0,579	0,137	***	-0,588	0,138	***
Change in GDP	0,028	0,019		0,025	0,018		0,016	0,024		0,030	0,017		0,025	0,017		0,026	0,019		0,029	0,019		0,023	0,018		0,025	0,019		0,028	0,019	
Change in unemployment	0,037	0,020		0,038	0,019	*	0,034	0,020		0,036	0,019		0,054	0,020	**	0,037	0,020		0,017	0,024		0,016	0,023		0,038	0,020		0,039	0,019	
Individual variables																														
Age (ref. 35-49y)																														
20-34y	-0,428	0,066	***	-0,381	0,066	***	-0,437	0,067	***	-0,388	0,066	***	-0,411	0,067	***	-0,389	0,066	***	-0,395	0,068	***	-0,380	0,066	***	-0,408	0,067	***	-0,377	0,066	***
50-64y	0,041	0,064		0,025	0,064		0,047	0,064		0,066	0,063		0,068	0,065		0,064	0,064		0,065	0,066		0,065	0,064		0,071	0,064		0,072	0,064	
Employment status																														
Unemployed (ref, no job seeking)	1,238	0,184	***	1,270	0,178	***	1,218	0,176	***	1,183	0,174	***	1,296	0,181	***	1,128	0,175	***	1,295	0,179	***	1,224	0,174	***	1,246	0,182	***	1,202	0,177	***
x seeking for job	-0,278	0,213		-0,328	0,209		-0,247	0,205		-0,203	0,204		-0,351	0,213		-0,145	0,205		-0,267	0,208		-0,197	0,203		-0,248	0,212		-0,200	0,208	
Non-employed (ref, retired)	0,477	0,100	***	0,413	0,101	***	0,476	0,101	***	0,443	0,099	***	0,478	0,104	***	0,437	0,101	***	0,437	0,102	***	0,453	0,099	***	0,392	0,102	***	0,457	0,101	***
x student	-0,788	0,158	***	-0,730	0,156	***	-0,795	0,158	***	-0,776	0,155	***	-0,768	0,163	***	-0,855	0,159	***	-0,724	0,161	***	-0,777	0,155	***	-0,744	0,161	***	-0,762	0,157	***
x homework	-0,319	0,113	**	-0,261	0,114	*	-0,275	0,113	*	-0,264	0,112	*	-0,247	0,117	*	-0,273	0,113	*	-0,219	0,110	*	-0,272	0,111	*	-0,193	0,114		-0,264	0,113	*
x sick/disabled	3,279	0,171	***	3,336	0,168	***	3,294	0,168	***	3,343	0,166	***	3,210	0,176	***	3,311	0,168	***	3,442	0,171	***	3,332	0,166	***	3,420	0,170	***	3,304	0,170	***
Cross-level interactions																														
unemployed x change in unemployment	-0,002	0,036		-0,003	0,036		0,001	0,036		-0,002	0,036		-0,014	0,037		-0,003	0,036		0,045	0,045		0,032	0,045		-0,002	0,037		0,002	0,036	
x seeking for job x change in unemployment	0,010	0,041		0,010	0,041		0,007	0,041		0,009	0,041		0,026	0,042		0,008	0,041		-0,011	0,051		-0,004	0,051		0,007	0,041		0,004	0,041	
non-employed x change in unemployment	-0,037	0,026		-0,041	0,026		-0,037	0,027		-0,033	0,026		-0,055	0,029		-0,039	0,027		-0,056	0,029		-0,048	0,028		-0,035	0,027		-0,036	0,026	
x student x change in unemployment	0,026	0,036		0,030	0,035		0,029	0,036		0,026	0,036		0,042	0,038		0,028	0,036		0,081	0,044		0,055	0,041		0,027	0,036		0,025	0,035	
x homework x change in unemployment	0,081	0,028	**	0,083	0,028	**	0,079	0,028	**	0,074	0,028	**	0,090	0,030	**	0,081	0,028	**	0,104	0,031	***	0,094	0,030	**	0,076	0,029	**	0,078	0,028	**
x sick/disabled x change in unemployment	-0,057	0,049		-0,057	0,048		-0,060	0,049		-0,063	0,048		0,002	0,052		-0,056	0,049		-0,027	0,057		-0,070	0,055		-0,067	0,049		-0,060	0,048	
Variance (3) Country	0,216	0,084	**	0,220	0,084	**	0,213	0,082	**	0,223	0,084	**	0,207	0,079	*	0,217	0,084	*	0,226	0,088	**	0,222	0,084	**	0,188	0,075	*	0,216	0,084	*
(2) Period	0,056	0,025	*	0,050	0,024	*	0,055	0,025	*	0,043	0,021	*	0,044	0,022	*	0,054	0,025	*	0,051	0,025	*	0,048	0,023	*	0,057	0,026	*	0,057	0,026	*
(1) Individual	15,047	0,132	***	14,844	0,130	***	15,213	0,133	***	15,000	0,130	***	15,156	0,135	***	15,204	0,133	***	15,043	0,136	***	14,944	0,131	***	15,272	0,134	***	14,883	0,131	***
ρ	0,018			0,018			0,017			0,017			0,016			0,018			0,018			0,018			0,016			0,018		
-2LL	144514310			143627552			145393521			147048267			140757545			146157375			135724341			144432718			144431077			143238599		

* p < 0,050 ** p < 0,010 *** p < 0,001 ;N period (*country) = 38; N country = 19

All models controlled for education, education², marital status, income and macroeconomic context variables (unemployment rate and GDP)

Appendix 15.h: Jackknife analysis, the results of Model 3 of Table 4 for women, each time without one country (Part 2) *(Study 3).*

Without	UK			Hungary			Ireland			Netherland			Norway			Poland			Portugal			Sweden			Slovakia			Slovenia		
	b	SE	sig,	b	SE	sig,	b	SE	sig,	b	SE	sig,	b	SE	sig,	b	SE	sig,	b	SE	sig,	b	SE	sig,	b	SE	sig,	b	SE	sig,
Intercept	6,505	0,561	***	5,865	0,505	***	6,485	0,586	***	6,577	0,588	***	6,589	0,608	***	6,361	0,609	***	6,501	0,587	***	6,506	0,578	***	6,620	0,601	***	7,148	0,506	***
Period variables																														
Period (ref, 2006)																														
2012	-0,648	0,143	***	-0,583	0,135	***	-0,574	0,137	***	-0,613	0,135	***	-0,626	0,135	***	-0,562	0,152	***	-0,531	0,121	***	-0,589	0,135	***	-0,572	0,138	***	-0,538	0,124	***
Change in GDP	0,035	0,020		0,026	0,018		0,026	0,019		0,029	0,018		0,030	0,022		0,025	0,020		0,025	0,017		0,028	0,019		0,027	0,019		0,024	0,017	
Change in unemployment	0,041	0,020	*	0,041	0,020	*	0,041	0,023		0,040	0,020	*	0,042	0,020	*	0,032	0,023		0,038	0,018	*	0,038	0,020		0,037	0,020		0,033	0,018	
Individual variables																														
Age (ref. 35-49y)																														
20-34y	-0,418	0,067	***	-0,377	0,066	***	-0,417	0,067	***	-0,384	0,067	***	-0,408	0,067	***	-0,372	0,066	***	-0,353	0,066	***	-0,389	0,066	***	-0,350	0,067	***	-0,410	0,066	***
50-64y	0,095	0,064		0,064	0,063		0,082	0,064		0,093	0,064		0,087	0,064		0,053	0,063		0,060	0,064		0,069	0,064		0,061	0,064		0,047	0,063	
Employment status																														
Unemployed (ref, no job seeking)	1,062	0,177	***	1,231	0,176	***	1,199	0,175	***	1,176	0,179	***	1,156	0,176	***	1,216	0,184	***	1,269	0,181	***	1,154	0,176	***	1,166	0,179	***	1,196	0,177	***
x seeking for job	-0,054	0,206		-0,200	0,205		-0,212	0,204		-0,177	0,208		-0,174	0,206		-0,253	0,215		-0,307	0,211		-0,118	0,206		-0,128	0,210		-0,215	0,206	
Non-employed (ref, retired)	0,504	0,102	***	0,430	0,101	***	0,466	0,100	***	0,433	0,100	***	0,435	0,100	***	0,316	0,105	**	0,422	0,101	***	0,454	0,100	***	0,423	0,104	***	0,501	0,102	***
x student	-0,820	0,158	***	-0,743	0,157	***	-0,780	0,157	***	-0,791	0,158	***	-0,753	0,160	***	-0,584	0,161	***	-0,727	0,158	***	-0,873	0,159	***	-0,719	0,159	***	-0,848	0,159	***
x homework	-0,336	0,114	**	-0,228	0,113	*	-0,263	0,113	*	-0,247	0,114	*	-0,256	0,113	*	-0,235	0,117	*	-0,267	0,114	*	-0,264	0,112	*	-0,221	0,110	*	-0,298	0,114	**
x sick/disabled	3,146	0,173	***	3,381	0,169	***	3,288	0,167	***	3,329	0,176	***	3,449	0,171	***	3,415	0,169	***	3,408	0,168	***	3,477	0,173	***	3,430	0,170	***	3,299	0,168	***
Cross-level interactions																														
unemployed x change in unemployment	-0,001	0,036		-0,008	0,036		0,027	0,045		0,003	0,036		0,005	0,037		-0,008	0,039		0,005	0,036		0,005	0,036		0,004	0,037		0,002	0,036	
x seeking for job x change in unemployment	0,008	0,041		0,013	0,041		-0,051	0,050		0,002	0,041		0,001	0,041		0,019	0,044		0,004	0,041		-0,002	0,041		-0,003	0,041		0,004	0,041	
non-employed x change in unemployment	-0,020	0,027		-0,045	0,027		-0,007	0,031		-0,036	0,027		-0,039	0,027		-0,005	0,031		-0,038	0,027		-0,036	0,026		-0,031	0,027		-0,028	0,027	
x student x change in unemployment	0,011	0,036		0,034	0,036		-0,026	0,043		0,029	0,036		0,029	0,036		-0,024	0,040		0,034	0,036		0,033	0,036		0,014	0,036		0,018	0,036	
x homework x change in unemployment	0,060	0,029	*	0,085	0,029	**	0,079	0,035	*	0,079	0,028	**	0,081	0,029	**	0,049	0,033		0,081	0,029	**	0,078	0,028	***	0,072	0,029	*	0,071	0,028	*
x sick/disabled x change in unemployment	-0,090	0,049		-0,065	0,049		-0,114	0,060		-0,060	0,049		-0,078	0,049		-0,076	0,051		-0,051	0,049		-0,073	0,049		-0,072	0,049		-0,066	0,049	
Variance (3) Country	0,194	0,077	**	0,171	0,052	**	0,212	0,083	*	0,218	0,084	**	0,222	0,085	**	0,204	0,080	*	0,225	0,084	**	0,209	0,082	*	0,213	0,083	*	0,159	0,054	**
(2) Period	0,055	0,025	*	0,057	0,026	*	0,058	0,026	*	0,053	0,025	*	0,051	0,024	*	0,058	0,026	*	0,039	0,019	*	0,056	0,026	*	0,057	0,026	*	0,058	0,022	*
(1) Individual	14,988	0,133	***	14,891	0,131	***	15,142	0,134	***	15,198	0,134	***	15,312	0,134	***	14,751	0,129	***	14,889	0,132	***	15,088	0,132	***	15,131	0,133	***	15,141	0,132	***
ρ	0,016			0,015			0,018			0,018			0,018			0,017			0,017			0,017			0,018			0,014		
-2LL	142081196			144288955			142911040			144261344			145762304			143892057			142201434			144689226			144141859			146453153		

* p < 0,050 ** p < 0,010 *** p < ,001 ; N period (*country) = 38; N country = 19

All models controlled for education, education², marital status, income and macroeconomic context variables (unemployment rate and GDP)

Appendix 16: Percentage of cases with missing values on the variables and the final sample size of women and men per country per period *(Study 4).*

	Women (N = 28 014)						**Men** (N = 22 978)					
	2002		2005-2006		2010		2002		2005-2006		2010	
Country	Missings (%)	Final N	Missings (%)	Final N	Missings (%)	Final N	Missings (%)	Final N	Missings (%)	Final N	Missings (%)	Final N
Belgium	0,71	419	1,46	404	8,17	371	1,68	409	2,58	340	6,99	359
Denmark	1,04	381	0,80	373	1,60	370	0,51	390	7,29	356	0,29	348
Germany	0,76	781	0,49	609	1,19	581	0,82	726	0,19	515	0,95	523
Greece	0,00	401	1,05	469	7,16	363	0,00	371	0,35	283	0,82	363
Spain	0,26	386	0,49	408	1,57	375	0,00	364	0,74	267	0,28	355
France	1,40	424	0,24	424	2,14	412	1,01	392	1,48	333	1,44	343
Ireland	1,01	392	4,80	456	4,43	453	0,79	378	6,42	306	1,45	340
Italy	0,49	403	1,17	508	3,29	412	0,78	384	2,92	333	3,52	356
Luxembourg	0,78	254	0,45	219	2,43	201	0,00	212	3,47	139	1,22	162
Netherlands	1,12	441	1,13	438	2,04	385	1,90	414	0,92	432	2,66	366
Portugal	0,25	401	2,49	352	3,47	389	0,29	339	2,39	245	5,29	340
United Kingdom	1,07	648	1,15	517	3,31	467	2,86	374	1,94	404	0,00	404
Austria	1,45	476	1,13	436	2,69	434	3,12	311	4,49	383	3,00	356
Sweden	1,45	407	1,36	362	2,62	334	1,41	350	1,02	387	1,54	319
Finland	1,86	423	0,73	408	1,17	337	1,22	325	3,95	292	2,20	311
Republic of Cyprus			0,00	226	2,45	199			0,00	165	0,00	183
Czech Republic			0,45	443	3,20	424			1,34	369	3,98	362
Estonia			0,49	409	3,16	398			0,89	223	1,26	314
Hungary			1,76	447	3,81	404			0,72	275	1,98	346
Latvia			0,22	451	7,20	361			0,66	301	9,04	332
Lithuania			0,24	412	4,00	384			1,53	258	3,89	321
Malta			0,79	251	5,63	218			0,00	112	3,88	124
Poland			0,74	400	3,08	440			2,29	341	2,62	297
Slovakia			2,91	467	1,83	429			3,41	312	1,45	407
Slovenia			3,37	402	7,82	377			5,11	334	8,18	303
Bulgaria			0,80	373	2,71	430			3,54	354	2,67	292
Romania			4,83	394	11,06	378			11,97	309	9,16	357
Total	0,93	6637	1,36	11058	3,82	10326	1,10	5739	2,80	8368	3,13	8871

Source: Eurobarometer wave 58.2 (2002), wave 64.4 (2005-2006) and wave 73.2 (2010)

Appendix 17: Description of the sample: the individual variables by period and gender and their % missing values *(Study 4).*

	% missing values		2002				2005/2006				2010				Total			
	Women	Men	Women		Men		Women		Men		Women		Men		Women		Men	
Mental health ($\bar{x}$, SD)	0,3	0,3	3,7	0,8	3,8	0,8	3,8	0,8	3,9	0,7	3,6	0,7	3,8	0,7	3,7	0,8	3,8	0,8
Mental health care use (%)																		
GP consultations	0,1	0,1	6,4		4,1		10,9		7,6		12,4		9,0		10,4		7,3	
Psychiatrist consultations	0,1	0,2	1,7		1,4		2,3		1,6		1,8		1,5		2,0		1,5	
Employment status (%)	1,7	1,3																
Employed			55,8		74,1		54,4		72,5		54,7		67,9		54,8		71,1	
Non-employed			37,8		19,9		37,8		20,2		35,3		20,5		36,9		20,3	
Unemployed			6,3		6,0		7,8		7,3		10,0		11,6		8,3		8,7	
Age ($\bar{x}$, SD)	0,0	0,0	41,3	12,8	41,7	13,1	43,4	12,9	43,0	13,2	43,6	12,9	43,3	13,1	43,0	12,9	42,8	13,1
Education (%)	0,2	0,1																
Low			36,0		33,3		27,9		24,5		23,3		21,2		28,1		25,4	
Middle			30,0		30,1		38,0		39,1		39,5		41,2		36,7		37,2	
High			34,0		36,6		32,9		34,8		31,4		31,4		32,6		33,9	
Marital status (%)	0,9	1,1																
Married/ legally cohabiting			55,8		52,8		67,2		69,0		68,5		69,7		65,0		65,3	
Single			29,1		38,7		14,5		21,8		16,5		22,1		18,7		26,1	
Divorced			10,6		7,1		11,2		7,4		9,9		6,7		10,6		7,1	
Widow(er)			4,6		1,4		7,0		1,7		5,1		1,5		5,7		1,6	
Degree of urbanization (%)	0,2	0,2																
Rural			35,5		37,3		36,0		35,9		36,3		35,7		36,0		36,2	
Small urban			31,5		29,4		36,5		36,5		35,7		34,6		35,0		34,0	
Large urban			33,0		33,3		27,5		27,6		28,0		29,7		29,0		29,8	

Source: Eurobarometer wave 58.2 (2002), wave 64.4 (2005/2006) and wave 73.2 (2010)

Appendix 18: Description of the external data: Real GDP growth rate and unemployment rate of women and men by period and country *(Study 4).*

	Real GDP growth rate			Unemployment rate of women			Unemployment rate of men		
	2001-2002	2004-2005	2009-2010	2001-2002	2004-2005	2009-2010	2001-2002	2004-2005	2009-2010
Belgium	0,9	3,4	-2,6	7,5	9,5	8,1	5,9	7,5	7,8
Denmark	0,8	2,6	-5,1	5,5	6,0	5,3	4,1	5,1	6,6
Germany	1,7	1,2	-5,6	7,9	10,1	7,2	7,7	10,6	8,0
Greece	3,7	5,0	-4,4	16,1	16,3	13,3	7,2	6,7	7,0
Spain	4,0	3,2	-3,6	15,2	14,8	18,1	7,5	8,3	17,7
France	2,0	2,8	-2,9	7,8	9,7	9,2	7,9	8,2	9,0
Ireland	5,3	4,6	-6,4	3,8	4,0	8,2	4,1	4,8	15,0
Italy	1,8	1,6	-5,5	12,1	10,5	9,3	6,9	6,4	6,8
Luxembourg	2,0	4,9	-5,3	2,4	6,8	5,9	1,6	3,6	4,5
Netherlands	1,6	1,9	-3,3	3,2	5,3	3,8	2,1	4,9	3,7
Portugal	1,9	1,8	-3,0	5,1	7,7	10,3	5,2	7,9	11,0
United Kingdom	2,7	2,5	-4,3	4,4	4,3	6,4	5,5	5,1	8,5
Austria	1,4	2,7	-3,8	4,2	5,4	4,6	3,1	4,5	5,0
Sweden	1,6	4,3	-5,2	5,6	7,1	8,0	6,1	7,6	8,6
Finland	2,6	3,9	-8,3	9,7	8,9	7,6	8,6	8,7	8,9
Republic of Cyprus		4,2	-1,7		6,0	5,5		3,5	5,3
Czech Republic		4,9	-4,8		9,9	7,7		7,0	5,9
Estonia		6,5	-14,7		9,1	10,3		11,1	16,7
Hungary		4,8	-6,6		6,1	9,7		6,1	10,3
Latvia		8,7	-18,0		12,0	14,1		11,5	20,9
Lithuania		7,4	-14,7		11,3	10,5		10,5	17,1
Malta		-0,5	-2,8		9,0	7,6		6,4	6,5
Poland		5,1	2,6		20,1	8,6		18,3	7,8
Slovakia		5,2	-5,3		19,3	12,9		17,5	11,5
Slovenia		4,4	-7,8		6,9	5,8		5,9	5,9
Bulgaria		6,6	-5,0		11,6	6,7		12,5	6,9
Romania		9,1	-6,8		6,8	5,4		8,9	7,3

Source: World Bank for real GDP growth rate; Eurostat for the unemployment rates (2001, 2004 and 2009)

Appendix 19: Samples size and mental health and mental health care use of the employed and unemployed per country *(Study 5).*

Country		**Mean MH-score**		**% GP consultations**		**% Psychiatrist consultations**	
	sample size	employed	unemployed	employed	unemployed	employed	unemployed
Austria	1 586	3,84	3,34	9,5	22,2	0,9	4,8
Belgium	1 483	3,95	3,67	9,2	13,8	2,1	2,9
Bulgaria	1 443	3,76	3,46	4,7	7,5	0,6	0,6
The Czech Republic	1 590	3,87	3,56	6,4	9,3	1,3	2,9
Denmark	1 411	4,09	3,78	11,2	23,1	0,7	6,6
Estonia	1 349	3,77	3,36	10,8	16,9	1,9	7,0
Finland	1 336	4,11	3,90	5,2	8,0	1,4	7,0
France	1 513	3,92	3,65	10,0	13,4	1,9	3,9
Germany	2 231	3,87	3,57	7,4	13,2	1,3	5,1
Greece	1 501	3,56	3,19	4,3	5,1	0,9	1,3
Hungary	1 481	3,85	3,61	6,9	6,6	1,8	5,1
Ireland	1 560	3,98	3,71	9,9	12,7	0,2	1,7
Italy	1 598	3,55	3,43	8,7	9,4	0,5	0,1
Latvia	1 451	3,61	3,35	7,6	9,5	0,1	1,2
Lithuania	1 369	3,71	3,50	9,1	13,5	1,3	3,5
The Netherlands	1 623	4,11	3,66	7,4	18,8	1,8	6,2
Poland	1 472	3,87	3,57	5,6	6,7	0,6	1,3
Portugal	1 302	3,81	3,43	11,2	14,9	2,0	5,2
Romania	1 410	3,73	3,35	19,0	20,0	0,1	1,1
Slovakia	1 613	3,90	3,70	12,1	13,2	0,5	3,7
Slovenia	1 419	3,86	3,73	4,2	12,3	1,4	3,3
Spain	1 384	3,91	3,68	5,4	11,1	1,3	0,5
Sweden	1 401	4,15	3,86	8,0	5,5	1,5	0,1
The UK	1 780	3,98	3,57	8,4	25,0	0,5	2,4
Total	36 306						
Mean		3,87	3,57	8,43	12,99	1,11	3,23

Appendix 20: Additional information, Bambra's health care decommodification measurement, Scruggs sickness generosity measurement, Public expenditures on disability and ALMP, and Total government spending *(Study 5).*

	Health care generosity Measure based on only the three indicators of Bambra's index (1)	Sickness generosity measurement of Scruggs (2)	Public expenditure on disability mean (3)	Public expenditure on ALMP (as % of GDP) (4)	Total goverment spending/ GDP 2009 - (mean of 2005 & 2009)
Austria	11,14	10,50	692,96	0,72	-0,12
Belgium	9,35	13,68	588,74	1,21	-0,01
Bulgaria	11,67	9,35	45,45	0,10	-13,35
The Czech Republic	14,33	10,67	154,10	0,27	-2,39
Denmark	14,03	12,38	1583,06	1,73	0,27
Estonia	13,21	12,22	128,07	0,13	0,04
Finland	13,12	12,16	1039,91	0,95	0,17
France	10,90	12,30	513,99	0,98	-0,11
Germany	8,50	13,24	633,37	0,98	-0,03
Greece	10,14	7,38	224,95	0,33	-0,12
Hungary	12,76	12,29	182,77	0,42	-0,43
Ireland	12,26	11,24	403,34	0,75	0,78
Italy	11,95	9,48	371,65	0,52	0,10
Latvia	12,32	14,05	66,39	0,50	-4,29
Lithuania	13,79	10,94	109,60	0,40	-2,01
The Netherlands	11,46	13,86	812,01	1,26	0,27
Poland	12,32	11,89	127,62	0,51	-2,70
Portugal	10,31	9,44	325,15	0,68	-0,48
Romania	14,77	n,a,	64,16	0,09	-7,53
Slovakia	12,46	9,90	109,52	0,30	-4,15
Slovenia	13,22	15,40	273,55	0,33	-0,69
Spain	11,04	9,88	335,43	0,82	0,37
Sweden	12,87	15,02	1499,58	1,10	0,39
The United Kingdom	14,04	8,34	667,45	0,40	1,08

Source: 1. Data from Eurostat, OECD, and WHO; own calculations via formula of Scruggs.
2. CWED 2 data (generosity sickness index; for countries without information on index, own calculations via Scruggs formula based on information of CWED 2 on the separate indicators).
3.Eurobarometer data
4. http://ec.europa.eu/europe2020/pdf/themes/24_almp_and_employment_services.pdf.
5. Final consumption expenditure as a % of GDP is collected from the WDI database; and the general government expenditure is divided by country's real GDP.

Appendit 21: Validity check of Eurobarometer, by comparing with ESS survey *(Study 5).*

	Eurobarometer (2005/6–2010)		**ESS (2006–2012)**		**Eurobarometer**	**ESS**
Country	Mean MH-score		CESD-8		% unemployed	
	employed	unemployed	employed	unemployed		
Austria	3,84	3,34	na	na	4,00	na
Belgium	3,95	3,67	4,67	6,77	11,70	7,90
Bulgaria	3,76	3,46	5,88	8,39	17,50	14,40
The Czech Republic	3,87	3,56	na	na	8,80	na
Denmark	4,09	3,78	4,33	5,75	6,40	4,10
Estonia	3,77	3,36	5,91	7,39	10,50	5,60
Finland	4,11	3,90	4,29	5,51	7,50	7,80
France	3,92	3,65	5,09	6,93	8,40	8,60
Germany	3,87	3,57	5,44	7,29	10,50	7,80
Greece	3,56	3,19	na	na	5,20	na
Hungary	3,85	3,61	7,17	9,21	9,20	9,50
Ireland	3,98	3,71	4,22	6,13	7,60	12,60
Italy	3,55	3,43	na	na	5,30	na
Latvia	3,61	3,35	na	na	16,70	na
Lithuania	3,71	3,50	na	na	16,70	na
The Netherlands	4,11	3,66	4,40	7,08	4,90	4,90
Poland	3,87	3,57	5,14	7,46	15,20	8,40
Portugal	3,81	3,43	6,14	7,99	11,80	14,60
Romania	3,73	3,35	na	na	6,70	na
Slovakia	3,90	3,70	6,57	8,01	8,40	8,90
Slovenia	3,86	3,73	4,41	6,15	8,60	8,10
Spain	3,91	3,68	5,17	6,74	13,70	13,10
Sweden	4,15	3,86	4,37	6,09	5,20	6,10
The United Kingdom	3,98	3,57	5,05	7,63	9,30	6,30
Correlation	between MHI & CESD-8				between % unemployed	
	-0,70 employed	***	-0,70 unemployed	***	0,62	***

Appendix 22: Placebo test and additional analyses with public disability spending in interaction with employment status *(Study 5).*

	GP- consultations						Psychiatrist consultations					
	Model 1			Model 2			Model 1			Model 2		
	OR	CI		OR	CI		OR	CI		OR	CI	
Constant	0,067	(0,055-	0,082)***	0,071	(0,058-	0,087)***	0,007	(0,005-	0,010)***	0,006	(0,004-	0,009)***
Employment status												
Unemployed	1,126	(0,994-	1,277)	1,129	(0,998-	1,276)	1,586	(1,224-	2,054)***	1,637	(1,270-	2,110)***
Nonemployed	1,209	(1,107-	1,321)***	1,218	(1,119-	1,327)***	1,988	(1,640-	2,409)***	2,013	(1,663-	2,435)***
Age	1,011	(1,007-	1,015)***	1,011	(1,008-	1,014)***	1,001	(0,993-	1,009)	1,001	(0,994-	1,008)
Gender (ref. men)												
Women	1,271	(1,173-	1,378)***	1,273	(1,180-	1,374)***	1,037	(0,871-	1,234)	1,039	(0,874-	1,235)
Mental health	0,350	(0,333-	0,369)***	0,364	(0,347-	0,382)***	0,244	(0,220-	0,260)***	0,245	(0,222-	0,270)***
Period (ref. 2005)												
2010,000	1,123	(0,951-	1,327)	1,121	(0,957-	1,314)	0,786	(0,650-	0,950)*	0,791	(0,658-	0,951)*
Sicknessgenerosity	1,017	(0,946-	1,094)				1,142	(1,008-	1,295)*			
Public disability expenditures				1,020	(0,981-	1,058)				1,076	(1,007-	1,145)*
Health care generosity	1,082	(1,018-	1,150)**	1,083	(1,015-	1,156)*	1,062	(0,955-	1,180)	1,011	(0,898-	1,138)
Cross-level inteaction effects												
Unemployed x sickness generosity	0,994	(0,932-	1,060)				1,049	(0,918-	1,199)			
Non-employed x sickness generosity	0,966	(0,927-	1,006)				0,960	(0,872-	1,057)			
Unemployed x public disability expenditures				1,025	(0,992-	1,058)				1,021	(0,956-	1.086)
Non-employed x public disability expenditures				0.984	(0,962-	1,006)				0,966	(0,918-	1,014)
Unemployed x health care generosity	1,082	(1,028-	1,139)**	1,052	(1,004-	1,102)*	1,084	(1,012-	1,161)*	1,075	(1,005-	1,149)*
Non-employed x Health care generosity	1,002	(0,967-	1,038	1,004	(0,970-	1,040)	1,023	(0,942-	1,111)	1,041	(0,958-	1,132)
Variance: Country	0,075	(0,002-	0,148)	0,075	(0,002-	0,148)	0,232	(0,061-	0,403)	0,307	(0,098-	0,500)
County x period	0,065	(0,018-	0,112)	0,065	(0,018-	0,112)	0,023	(-0,036-	0,082)	0,019	(-0,037-	0,076)

Models controlled for education, marital status, type of communities, and period; The metric variables are grand-mean centered
*p < 0,050 **p < 0,010 ***p < 0,001


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